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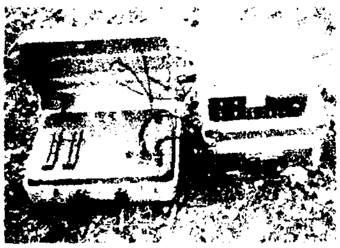

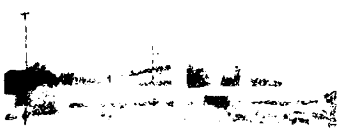

BLAST EFFECTS MONITORING STUDY AT HAZARDOUS WASTE SITE CLEANUP MEDDYBEMPS, MAINE

by

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and

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This report documents the results of a blast-effects monitoring study conducted during the Eastern Surplus hazardous waste site cleanup at Meddybemps, Maine. Seismic and acoustic data were collected at two locations during the demolition of deteriorated compressed gas cylinders using maximum explosive charges of 0.6-lb C4. The maximum peak particle velocity (PPV) and maximum peak air overpressure were 0.007 ips and 0.017 psi, respectively. These results were obtained from extrapolation of recorded levels at the measurement stations to the nearest private residences from the blast pit. These values are below the level of 1.0-ips PPV and near the level of 0.015-psi peak air overpressure established by the US Department of Interior, Office of Surface Mining Reclamation, and Enforcement for safe blasting criteria.

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PREFACE

This study which consisted of ground motion and air over-pressure monitoring was conducted by the Earthquake Engineering and Geosciences Division (EEGD), Geotechnical Laboratory (GL), US Army Engineer Waterways Experiment Station (WES), during the period 14-20 November 1988. This work was sponsored by the US Army Engineer Division, Huntsville (HND). Funding for this study was appropriated by Military Interdepartmental Purchase Order W31RYO-E8789M041, dated 4 November 1988. Mr. R. Young, Division Geologist, HND, was Technical Monitor and Mr. J. Boswell, Program Manager, Engineering Division, HND, was the Project Monitor during this study.

The field monitoring was conducted by Messrs. D. E. Yule, EEGS, GL, and J. L. Pickens of the Instrumentation Services Division (ISD), WES. The data analysis and report preparation were accomplished by Messrs. Yule and N. J. Sydow, EEGD. The work was performed under the direct supervision of Mr. J. R. Curro, Chief, Engineering Geophysics Branch, EEGD, GL, and under the general supervision of Dr. A. G. Franklin, Chief, EEGD, GL, and Dr. W. F. Marcuson III, Chief, GL.

COL Larry B. Fulton, EN, was Commander and Director of WES. Dr. Robert W. Whalin was Technical Director.

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CONVERSION FACTORS, NON-SI TO SI (METRIC) UNITS OF MEASUREMENT

Non-SI units of measurement used in this report can be converted to SI (metric) units as follows.

Multiply	By	To Obtain
feet	0.3048	metres
inches	2.54	centimetres
miles (US statute)	1.609347	kilometres
pounds (force)	4.448222	newtons
pounds per square inch	6.894757	kilopascals

BLAST EFFECTS MONITORING STUDY AT HAZARDOUS WASTE SITE CLEANUP, MEDDYBEMPS, MAINE

INTRODUCTION

1. The Engineering Division, Huntsville Division (HND) requested that the US Army Engineer Waterways Experiment Station (WES) conduct ground motion and air over-pressure monitoring during blasting operations involved in the cleanup of the Eastern Surplus hazardous waste site at Meddybemps, Maine. The site is located in Meddybemps on State Route 191 approximately 9 miles south of Calais, Maine (see figure 1). During the cleanup of this site several gas cylinders were discovered that were so deteriorated that transporting them off the site for disposal would have been dangerous. It was decided to dispose of them on site using explosives to rupture the cylinders and ignite and consume the contained gases rendering them safe. Because the site was located within a town with private residences relatively close, it was necessary to determine a safe charge size that would avoid property damage and then to monitor all explosive shots to insure ground motion and air over pressure levels were within safe criteria and provide evidence of such in the event of damage claims. This work which involved the demolition of 18 gas cylinders by a US Army Explosive Ordinance Disposal team from Aberdeen Proving Ground, Maryland was accomplished during the period 14-20 November 1988.

SITE DESCRIPTION AND BLAST SOURCE CHARACTERISTICS

2. The site is a heavily junked three acre area that is overgrown with trees and brush. The site is bounded on the west by a 10 ft scarp and by Meddybemps Lake to the north and the Dennis River to the east. The site's southern boundary is State Route 191. The demolition pit was located at the north end of the site (see figure 2). The site is located within the town of Meddybemps with the closest private residences located to the east at an approximate range of 400 ft from the blast pit.

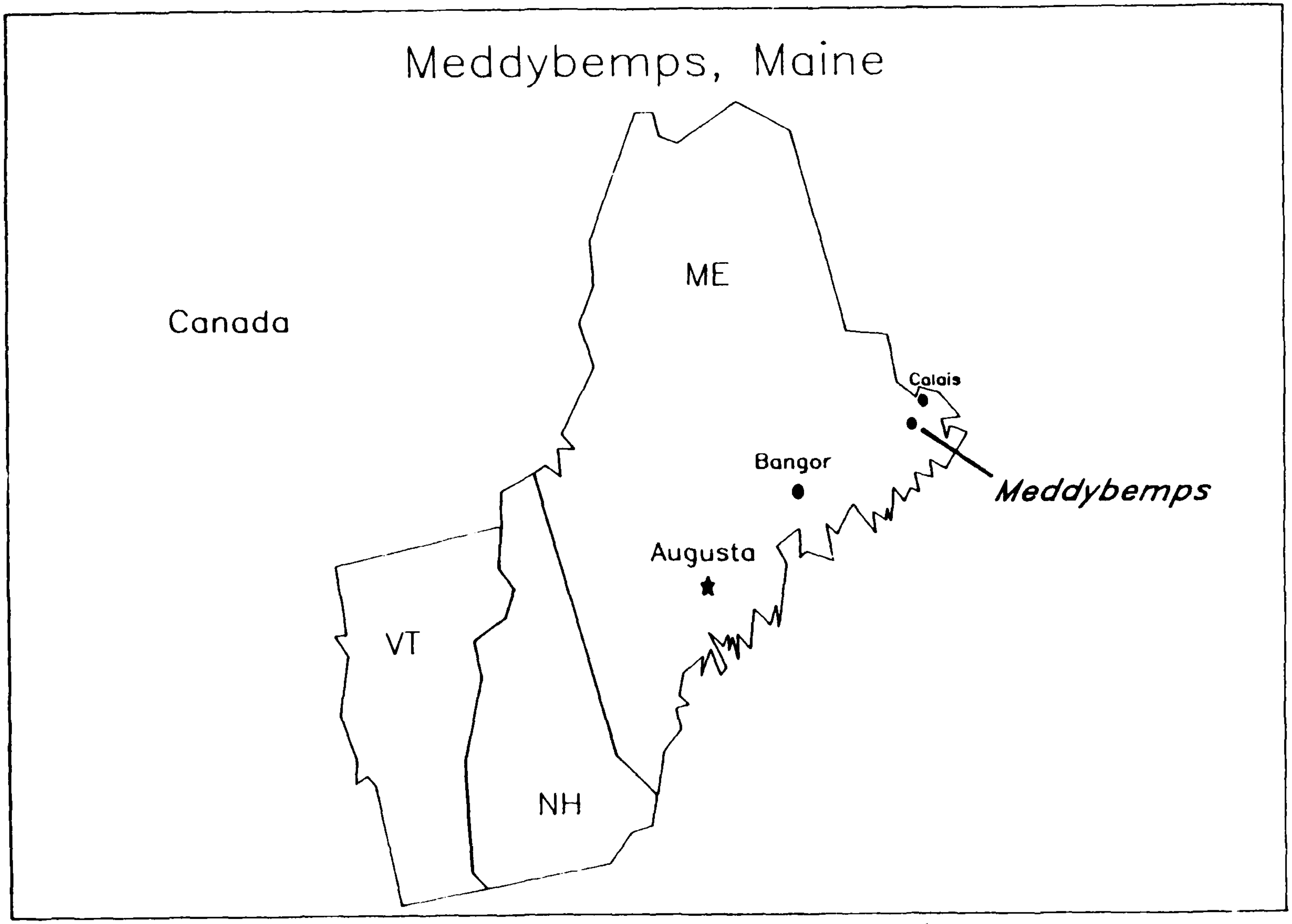


Figure 1. Site location map.

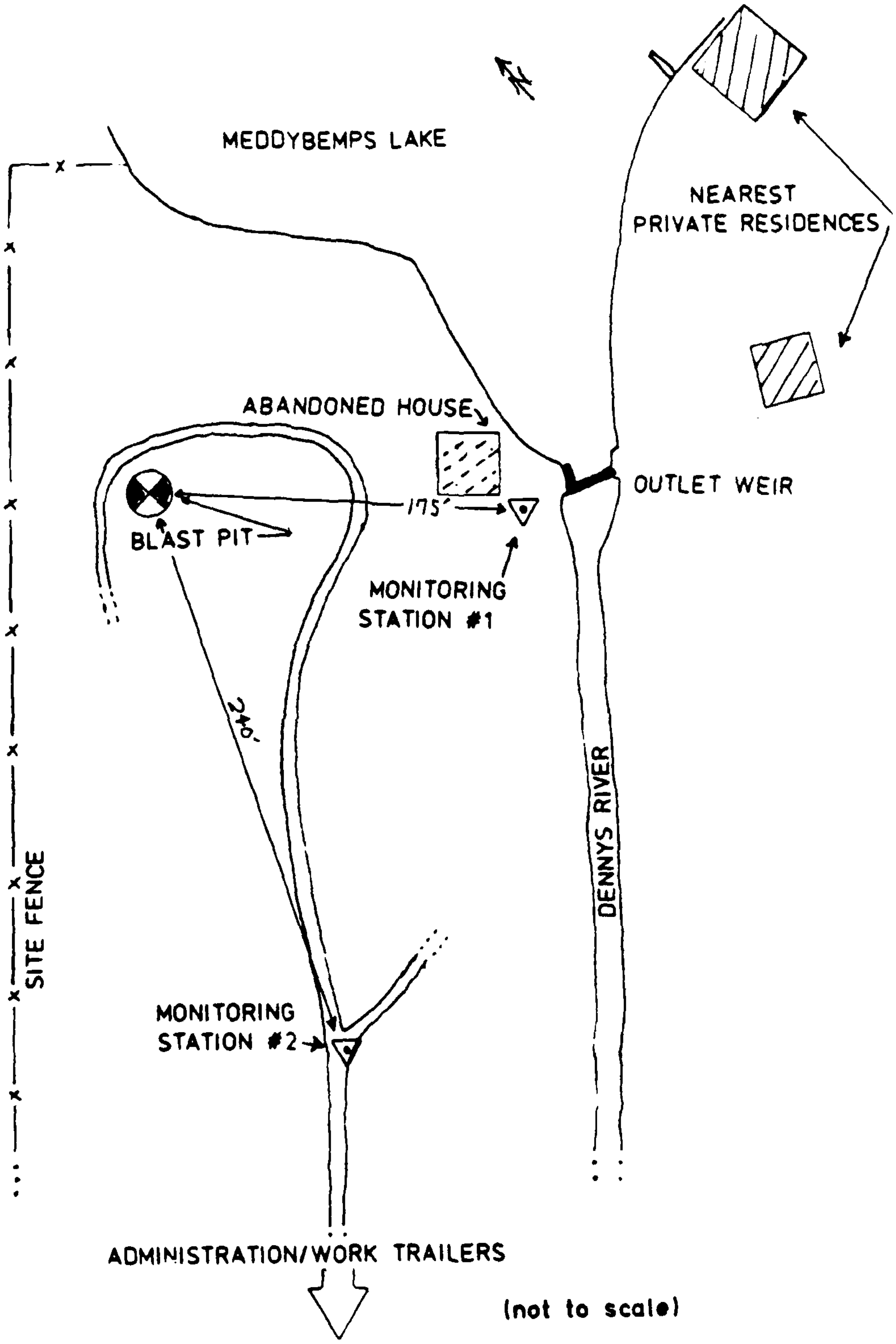


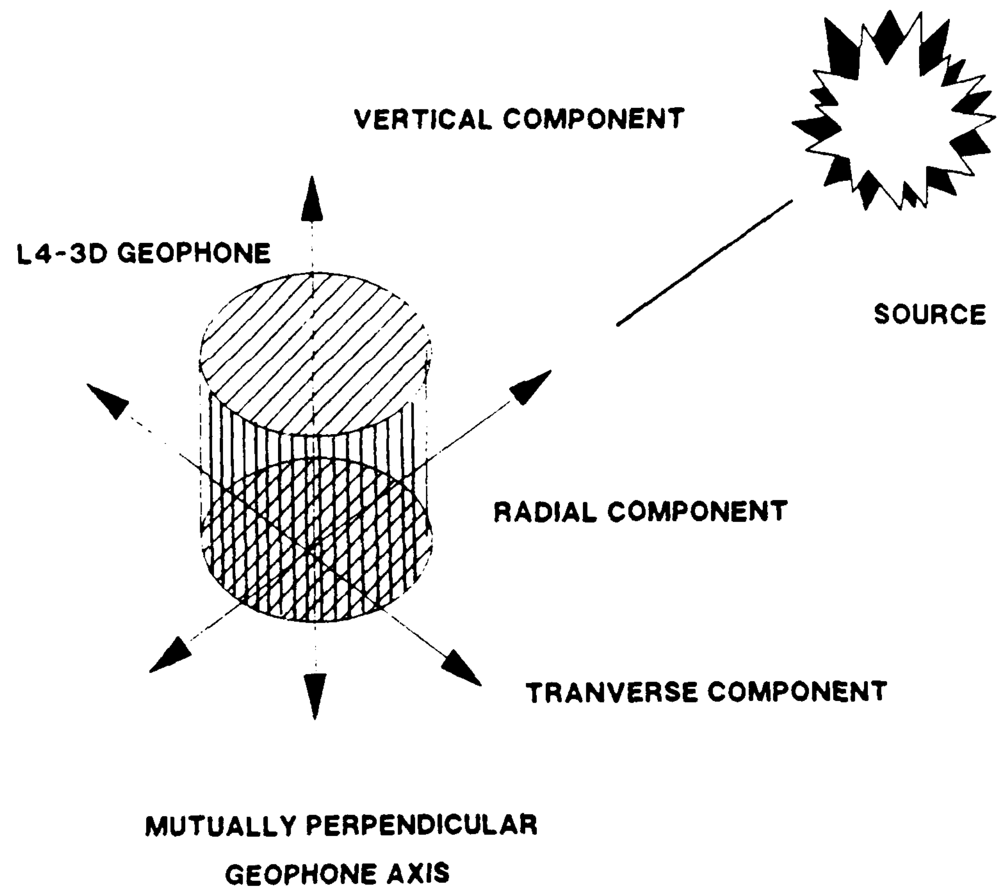
Figure 2. Site layout and location of monitoring stations.

3. The blast source characteristics were single or a group of two 20 lb ethylene oxide cylinders detonated with a charge size of 0.3 lb C4 explosives for single cylinder demolitions and 0.6 lb C4 for the double cylinder demolitions. The blasting was done in a steel drum placed in a 3.5 ft deep pit with a 3 ft soil berm surrounding the pit.

MONITORING INSTRUMENTATION

4. The test methodology consisted of placing measurement stations within the site boundary at two different radials and ranges from the blast pit toward the site's eastern boundary. This layout was chosen because the closest private residences were located along the eastern boundary and access to the private residences was not possible. Each measurement station consisted of three data channels of seismic monitoring and one air overpressure monitoring channel. The measurement stations were a triaxial array of calibrated L4 geophones (velocity transducers) oriented to detect the vertical, radial, and transverse components of the ground motion (see figure 3) and a microbarograph (air pressure transducer) to detect air overpressure. The geophones had a natural frequency of 1.0 hz and sensitivities of 3.07-4.55 volts/in/sec (v/ips) depending on the particular geophone. The microbarograph had a frequency response from 0 to 1000 hz and a sensitivity of 10.0 volts/lb./in^2 (v/psi). Instrument sensitivities and frequency responses are given in table 1 for each station. The geophones were buried level with the ground surface and the microbarograph was placed on the ground surface beside the geophones. The range to station 1 was approximately 175 ft and the range to station 2 was 240 ft (see figure 2).

5. The data acquisition instrumentation consisted of a 12 channel battery operated signal conditioning unit developed at WES, a 14 channel VHS format FM tape recorder, and a 6 channel oscillograph. All data were recorded on tape and after each shot, an immediate data playback was obtained from the oscillograph to insure data quality and enable immediate determination of recorded signal levels.



GEOPHONE ORIENTATION

Figure 3. Geophone orientation at Stations 1 and 2.

Table 1. Transducer Characteristics

Station	Channel	Sensor	Sensitivity	Frequency Response
1	1	Vertical Geophone	3.07 v/ips	1.0 hz natural
	2	Radial "	4.03 "	freq.
	3	Transverse "	3.84 "	
	4	Microbarograph	10.00 v/psi	0 - 1000 hz
2	5	Vertical Geophone	4.55 v/ips	1.0 hz natural
	6	Radial "	4.24 "	freq.
	7	Tranverse "	4.13 "	
	8	Microbarograph	10.00 v/psi	0 - 1000 hz

DATA PROCESSING AND PRESENTATION

6. The calibrated field data were recorded analog and unfiltered. The data were then digitized (512 samples/sec), stored in files on a computer, and processed using a program that displayed the data for inspection and calculated maximum peak particle velocities (PPV) and peak air overpressures (PAO) for the seismic and acoustic data channels, respectively. In addition, power spectral densities were calculated from the data to determine the frequency content and relative energy distribution. The data were then displayed in the form of amplitude versus time (time histories) and average peak-to-peak amplitude squared/hz versus frequency (PSD's). All data are being maintained at WES in analog and digital format on magnetic media for future reference.

MONITORING RESULTS

7. The monitoring involved a prediction calibration/demonstration shot, and a dry run followed by a series of 18 cylinder demolition shots. The dry run data were recorded but the data are not presented because of poor data quality caused by incorrect gain settings. The instrumentation were set up for predictions for a 0.3 lb shot when the actual shot size used was 0.6 lbs. This caused the peak amplitudes to be clipped and the loss of some of the data.

8. The calibration shot was performed at a nearby quarry to verify the predictions and serve as a demonstration for the local residents. This shot consisted of monitoring the signal levels from 0.6 lb of C4 attached to an empty cylinder laying in a 2.5 ft deep pit at a range of 200 ft. Based on the above charge size and range, the predictions of maximum PPV=0.022 ips and PAO=0.12 psi calculated from the equations below agreed very well with the maximum PPV and PAO of approximately 0.017 ips and 0.11 psi, respectively, recorded from the shot.

$$PPV = 160*(R/W^{.5})^{-1.6} \qquad PAO = 82*(R/W^{.33})^{-1.2}$$

Units: ips   Units:psi

Where R = Range in ft.
W = Weight of explosives in lb.

Having verified the prediction equations for this set up, it was possible to forecast with more certainty that the anticipated ground motion and air blast levels at the nearest private residences would be well below the allowable blast effect limit of 1.0 ips PPV and near the 0.015 psi (134 dB) PAO level. These limits were established for structures located between 300 and 5000 ft from the blast by the U.S. Department of Interior Office of Surface Mines Reclamation and Enforcement 30 CF Part 715, effective April 7,1983. (see

figures 4 and 5) Using the above equations, the calculated levels at the nearest private residence at a range of 400 ft would be 0.007 ips PPV and .05 psi PAO for a 0.6 lb C4 shot and 0.004 ips PPV and 0.04 psi PAO for a 0.3 lb shot. These predicted levels were based on a judgment that the gas in the cylinders would not significantly contribute extra explosive energy.

9. The 18 shots were monitored without any technical problems. Shots 1 and 3 through 16 involved the use of 0.3 lb C4 and one cylinder, shot 2 used 0.6 lb C4 and one cylinder, and shots 17 and 18 were comprised of 0.6 lb of C4 and two cylinders. The results of the monitoring are summarized in table 2 with the PPV's and PAO's for each shot plotted as bar graphs in figures 6 and 7, respectively. The data recorded for each test are also presented in Appendix A in the form of particle motion amplitude versus time for the geophone channels and overpressure amplitude versus time for the microbarograph channels. These data are arranged in a sequence of three figures for each test: Figure A1 shows the vertical, radial, transverse geophones at Station 1; Figure A2 presents the vertical, radial, transverse geophones at Station 2; Figure A3 displays the microbarographs at Station 1 and 2.

10. The recorded maximum peak ground motion levels at Station 1 (see figure 6) show an overall range of .0079 ips for Shot 8 to .025 ips for Shot 17. The 0.6 lb shots, 2,17, and 18, produced a mean PPV of 0.024 ips and a standard deviation of 0.0006. The 0.3 lb shots created a mean value of 0.017 ips and a standard deviation of 0.003. The maximum peak ground motions at Station 2 ranged from 0.0023 ips for Shot 8 to 0.009 ips for Shot 2. The 0.6 lb shots exhibited a mean PPV of 0.008 ips with a standard deviation of 0.002. The 0.3 lb shots developed a mean 0.006 ips PPV with a standard deviation of 0.001. These data are summarized in Table 3.

11. The recorded maximum peak air overpressures recorded at Station 1 (see figure 7) display a range of 0.0074 psi for Shot 8 to 0.043 psi for Shot 2. The mean PAO for the 0.6 lb shots is 0.039 psi with a standard deviation of 0.004. The mean value for the 0.3 lb shots is 0.026 psi with a standard deviation of 0.006. The levels recorded at Station 2 varied from a low of 0.0074 psi for Shot 8 to 0.024psi for Shot 18. These data at Station 2 for the

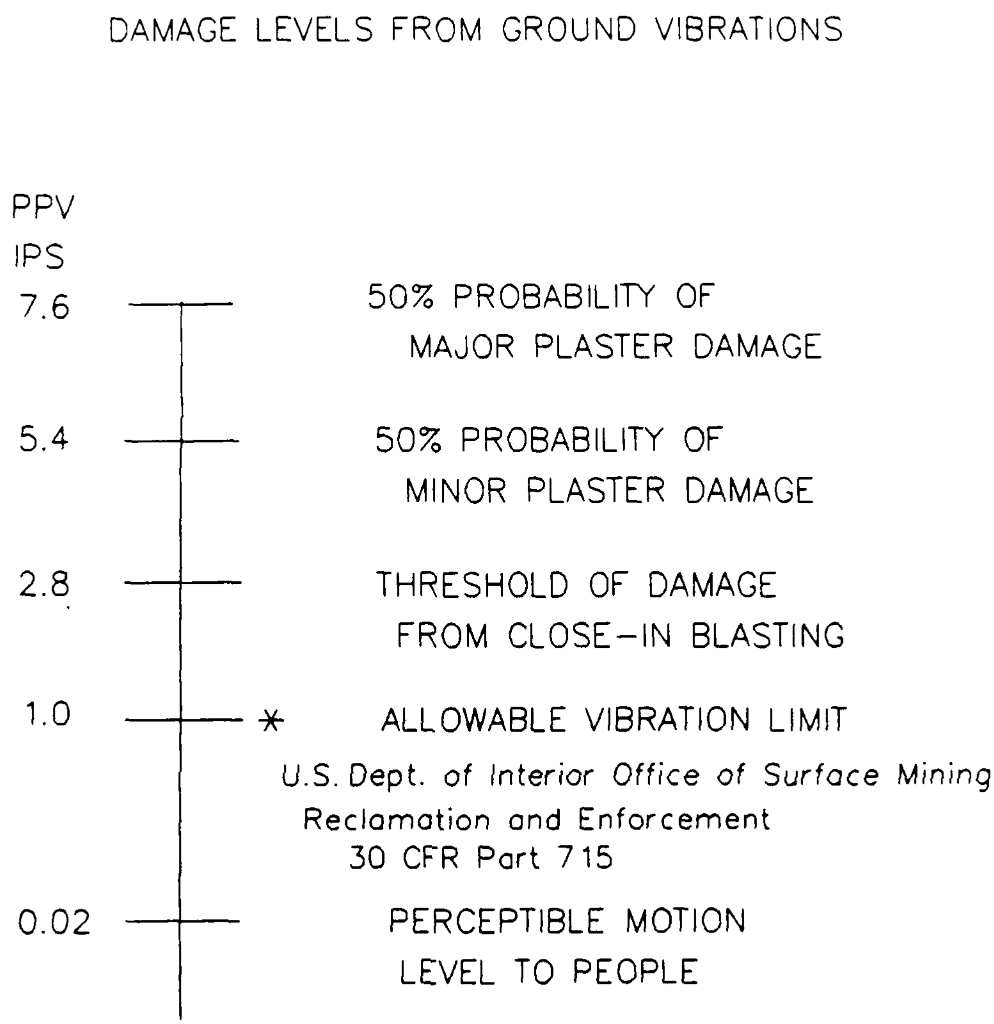


Chart from Dupont Blaster's Handbook, 16th ed., 1977
* Federal Register Vol 48 No. 46 March 8, 1983

Figure 4. Damage criteria for ground vibrations

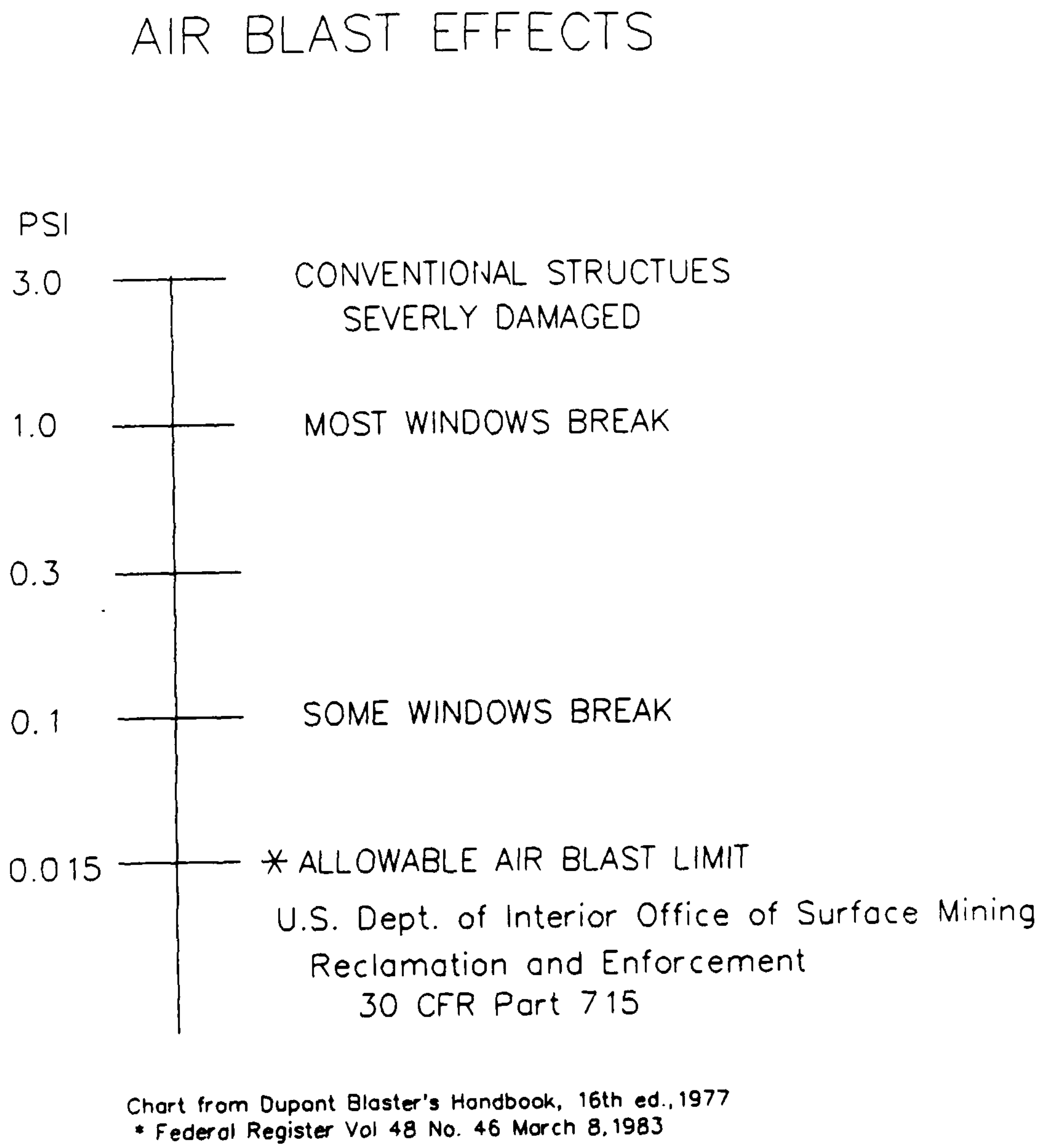


Figure 5. Damage criteria for air blast effects.

Table 2. Summary of recorded PPV (ips) and PAO (psi)

CHAN#	SENSOR	ORNT	UNITS	SHOT NUMBER 1	2	3	4	5	6
STATION 1									
1	GEOPHONE	VERT	IPS	.0170	.0240	.0190	.0170	.0190	.0180
2		RAD		.0081	.0120	.0091	.0082	.0089	.0120
3		TRANS		.0110	.0180	.0130	.0120	.0140	.0120
4	MICROBAR		PSI	.0270	.0430	.0290	.0240	.0270	.0280
STATION 2									
5	GEOPHONE	VERT	IPS	.0060	.0090	.0069	.0060	.0065	.0055
6		RAD		.0033	.0047	.0038	.0039	.0042	.0028
7		TRANS		.0037	.0052	.0043	.0037	.0042	.0037
8	MICROBAR		PSI	.0160	.0230	.0170	.0140	.0170	.0180

CHAN#		ORNT	UNITS	7	8	9	10	11	12
STATION 1									
1	GEOPHONE	VERT	IPS	.0170	.0079	.0180	.0180	.0210	.0210
2		RAD		.0130	.0057	.0130	.0150	.0160	.0180
3		TRANS		.0130	.0056	.0130	.0130	.0160	.0170
4	MICROBAR		PSI	.0300	.0083	.0290	.0310	.0270	.0320
STATION 2									
5	GEOPHONE	VERT	IPS	.0055	.0023	.0061	.0063	.0070	.0070
6		RAD		.0028	.0015	.0031	.0031	.0035	.0038
7		TRANS		.0039	.0018	.0043	.0043	.0047	.0051
8	MICROBAR		PSI	.0170	.0074	.0160	.0170	.0180	.0200

CHAN#		ORNT	UNITS	13	14	15	16	17	18
STATION 1									
1	GEOPHONE	VERT	IPS	.0180	.0150	.0170	.0140	.0250	.0240
2		RAD		.0150	.0130	.0130	.0120	.0220	.0210
3		TRANS		.0140	.0120	.0140	.0120	.0210	.0210
4	MICROBAR		PSI	.0290	.0240	.0220	.0250	.0360	.0370
STATION 2									
5	GEOPHONE	VERT	IPS	.0068	.0052	.0054	.0040	.0082	.0075
6		RAD		.0037	.0028	.0032	.0024	.0040	.0037
7		TRANS		.0049	.0039	.0043	.0030	.0055	.0051
8	MICROBAR		PSI	.0180	.0150	.0150	.0160	.0230	.0240

Note: ORNT = Orientation, MICROBAR =Microbarograph

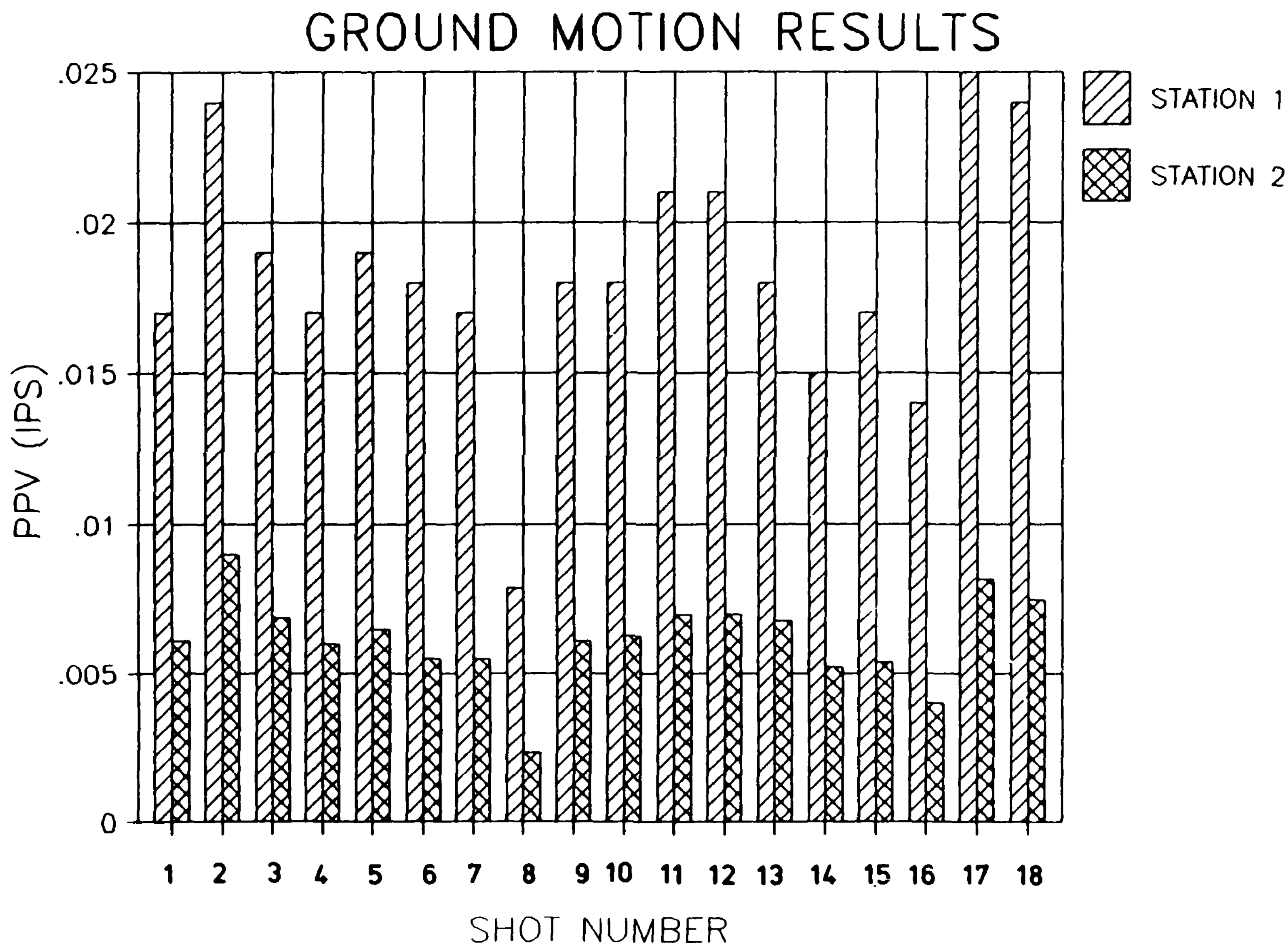


Figure 6. Recorded PPV at Stations 1 and 2.

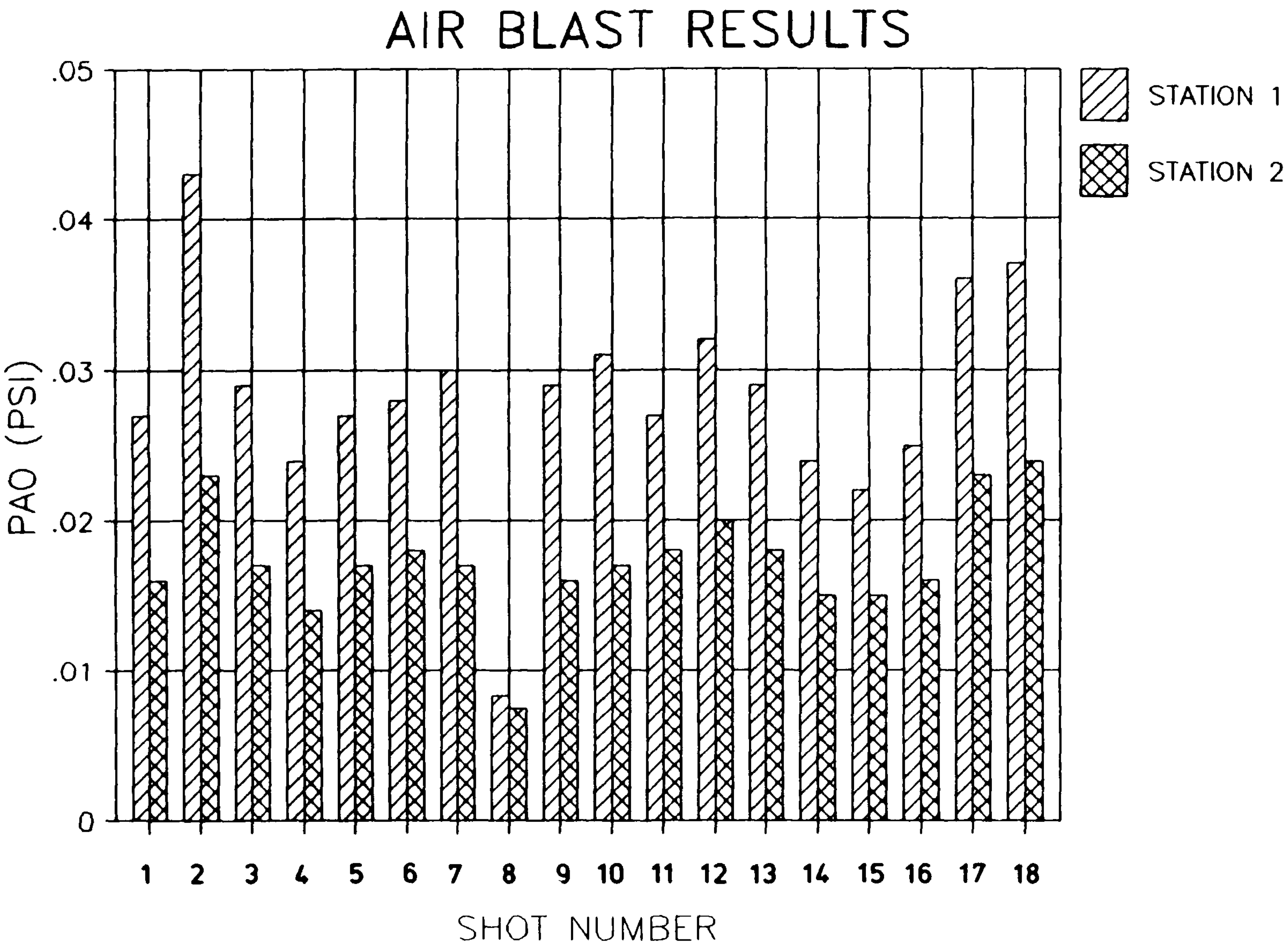


Figure 7. Recorded PAO at Stations 1 and 2.

0.6 lb shots had a mean PAO of 0.023 psi with a standard deviation of 0.001. For the 0.3 lb shots the mean PAO was 0.016 psi with a standard deviation of 0.003. These data are listed in Table 4.

TABLE 3. RECORDED PPV STATISTICS

SHOT WEIGHT (lb)	STATION #	PPV (ips) RANGE MIN - MAX	MEAN	STANDARD DEVIATION
ALL	ALL	.0023 - .0250		
0.6	1	.0240 - .0250	.024	.0006
	2	.0075 - .0090	.008	.0020
0.3	1	.0079 - .0210	.017	.0030
	2	.0023 - .0070	.006	.0010

TABLE 4. RECORDED PAO STATISTICS

SHOT WEIGHT (lb)	STATION #	PAO (psi) RANGE MIN - MAX	MEAN	STANDARD DEVIATION
ALL	ALL	.0074 - .043		
0.6	1	.0360 - .043	.039	.004
	2	.0230 - .024	.023	.001
0.3	1	.0083 - .032	.026	.006
	2	.0074 - .020	.016	.003

12. The results of the PSD calculations show that most of the energy of the ground motions lie in the band of 25 to 75 hz with the peak frequency approximately 40-45 hz. Two examples, one for the shot with the largest motions and one for typical motions, Shot 17 and Shot 9, respectively, are shown. (see figures 8 and 9) Because most residential structures have a resonant frequency below 8 hz, damage from low amplitude vibrations through resonance phenomenon is unlikely. Analysis of the frequency content of the acoustic data was not possible because the microbarograph did not provide useful frequency information.

EXTRAPOLATION OF RESULTS OFF SITE

13. Because measurements were not performed at the nearest private residences an extrapolation of the recorded site data is necessary to make an estimation of PPV and PAO levels off the site. The equations that were used to make the initial predictions, although yielding values that agree very well with the calibration shot values, over predict the actual recorded air overpressures at the site. The agreement between the calculated and recorded mean PPV's are within 10 percent. Therefore, the PPV equation is appropriate to estimate the off site levels. However, the calculated PAO's are over three times greater than the recorded mean PAO's, therefore, the calculated PAO's need to be reduced by a factor of three to better agree with the recorded data. Based on these comparisons, the calculated PPV and PAO at a range of 400 ft, which is the approximate distance to the nearest residence from the shots, are estimated to be 0.007 ips and 0.017 psi, respectively, for a 0.6 lb charge detonation.

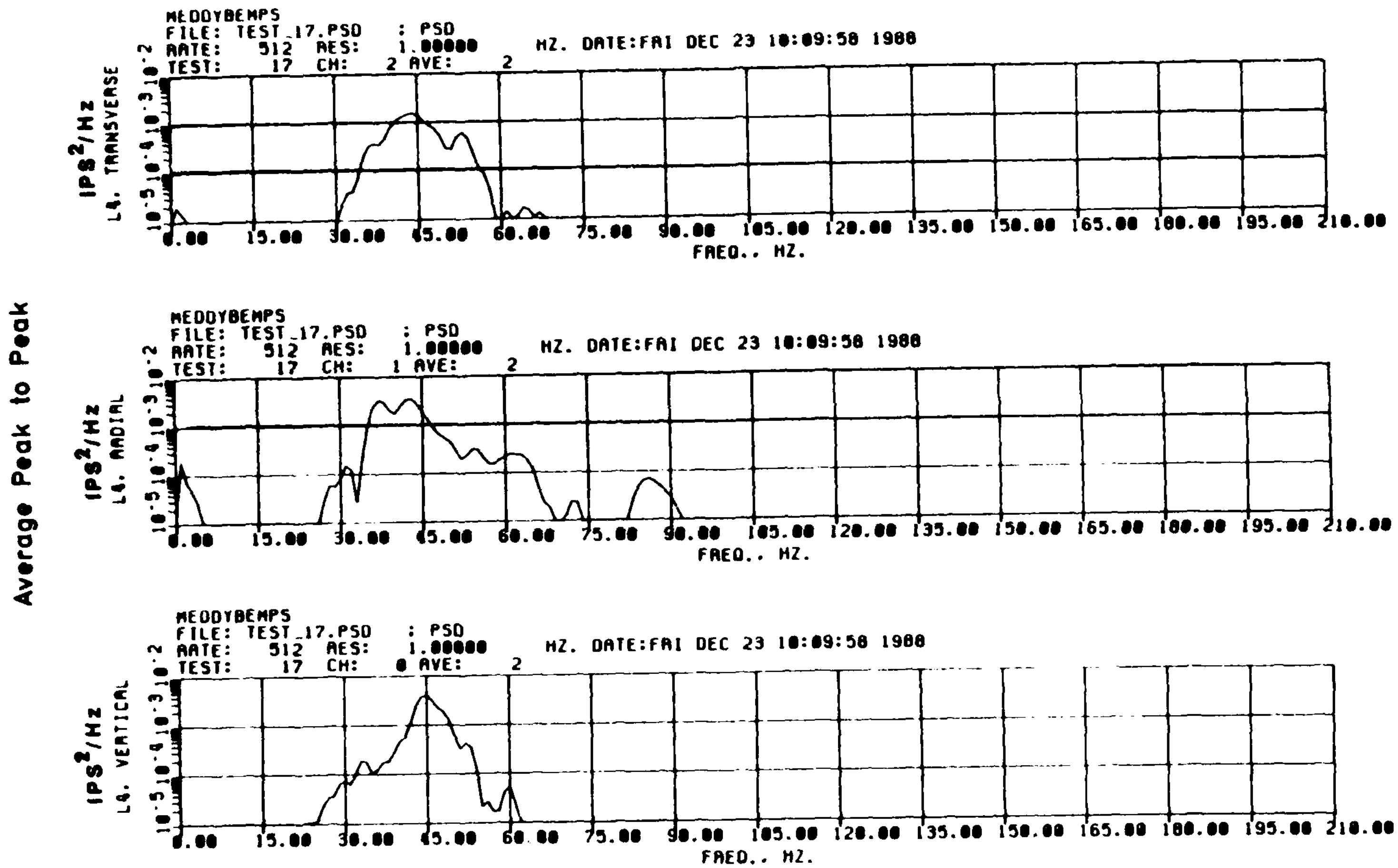


Figure 8. Power Spectral Density plots of Shot 17 at Station 1.

Average Peak to Peak

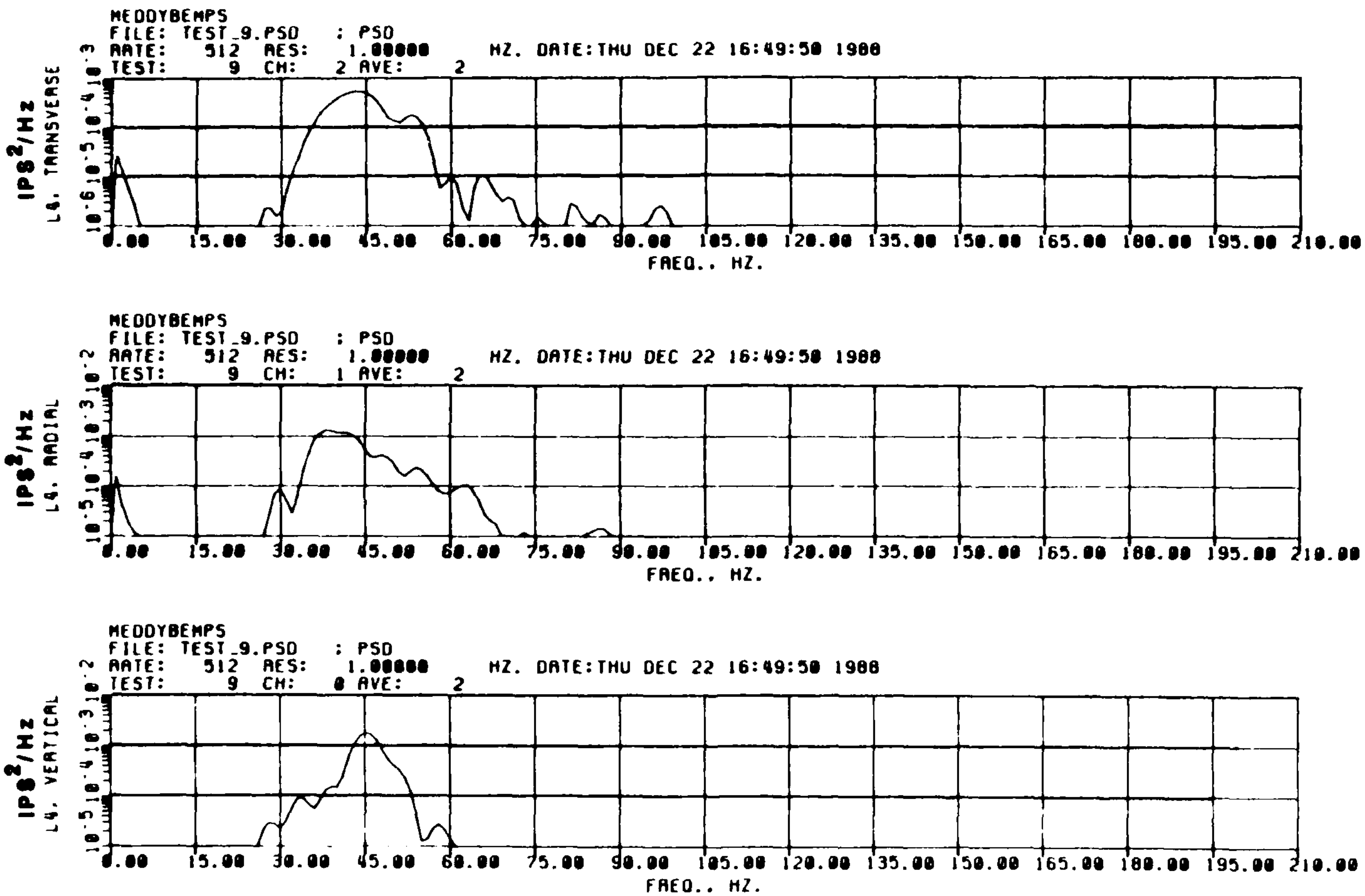


Figure 9. Power Spectral Density plots of Shot 9 at Station 1.

CONCLUSIONS

14. The results of the ground motion and air overpressure monitoring during the demolition of the cylinders were that the PPV and PAO levels off site were below the PPV of 1.0 ips and near or below the PAO of 0.015 psi damage criteria established by the U.S. Dept. of Interior, Office of Surface Mining Reclamation and Enforcement. An alternative and more rigorous criteria adopted by this agency which takes into account the frequency of the blast vibrations also showed the ground vibrations were far below the damage criteria conservatively determined to be 1.2 in/sec (see figure 10). The recorded maximums were a PPV of 0.025 ips at Station 1, Shot 17 and a PAO of 0.043 psi at Station 1, Shot 2. These results were extrapolated to a range of 400 ft (distance to the nearest private residence) based on the recorded mean maximums at Station 1 for a 0.6 lb shot, with the calculated levels being a PPV of 0.007 ips and PAO of 0.017 psi.

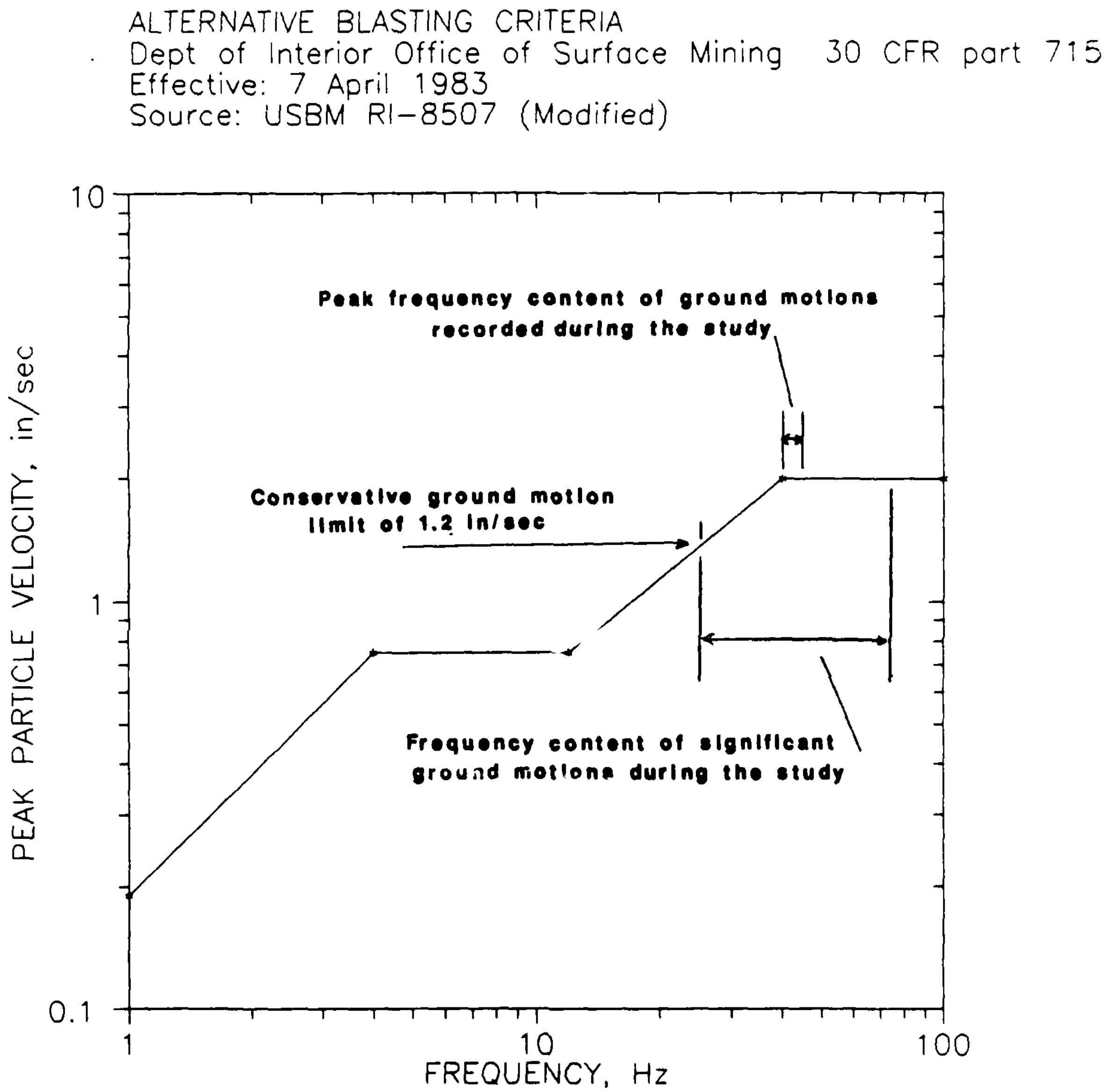


Figure 10. Determination of allowable ground vibration limit using the alternative blasting criteria.

APPENDIX A

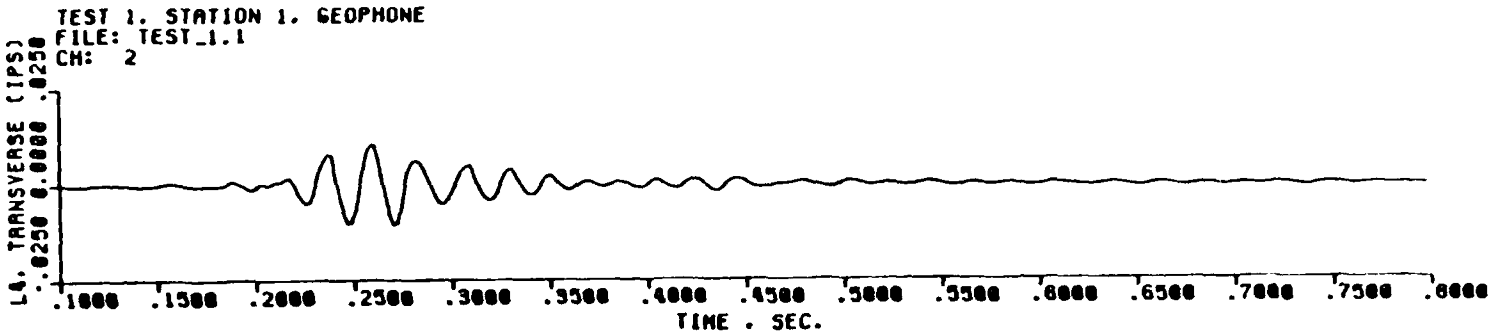
PARTICLE VELOCITY VERSUS TIME RECORDS

AIR OVERPRESSURE VERSUS TIME RECORDS

FOR

STATIONS 1 AND 2

TESTS 1 TO 18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L4. TRANSVERSE (IPS)
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-.0250
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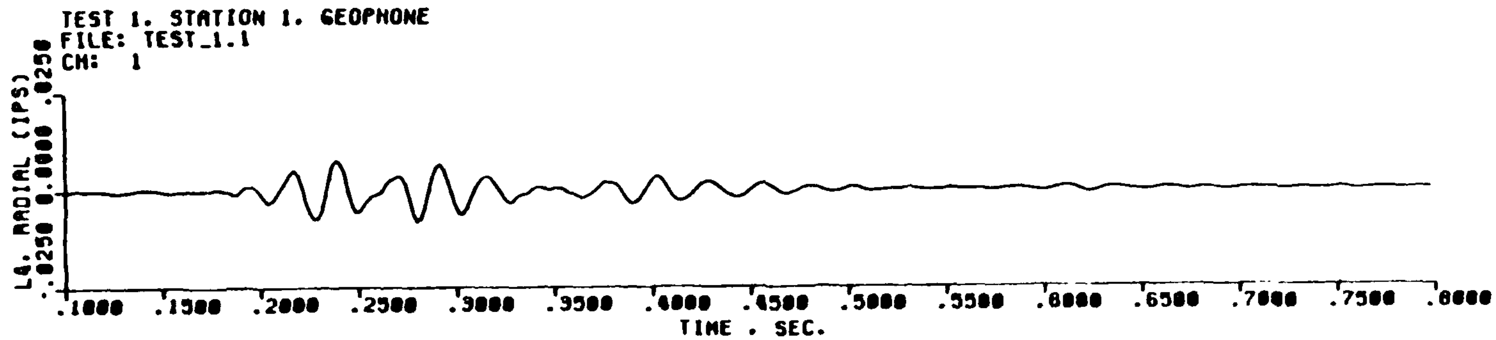
TIME . SEC.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-.0250
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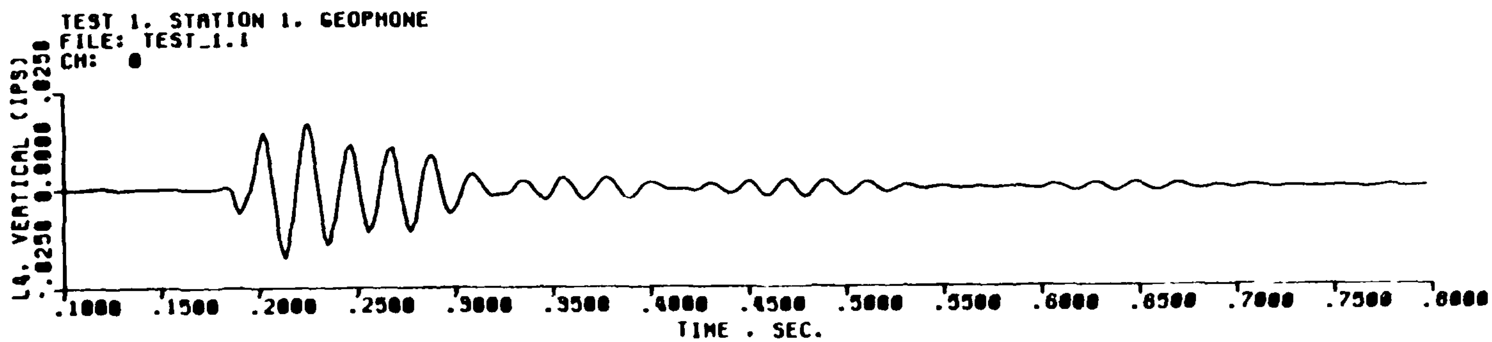
TIME . SEC.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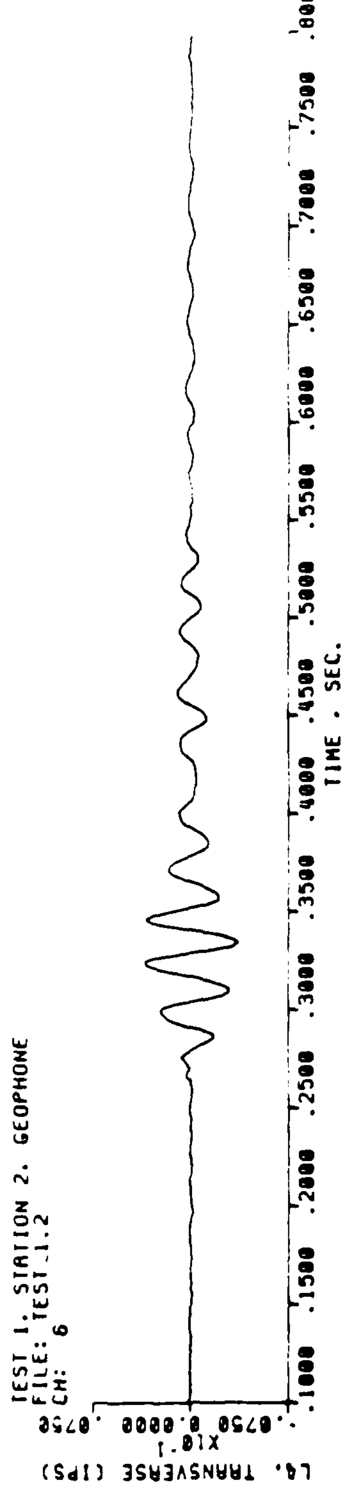
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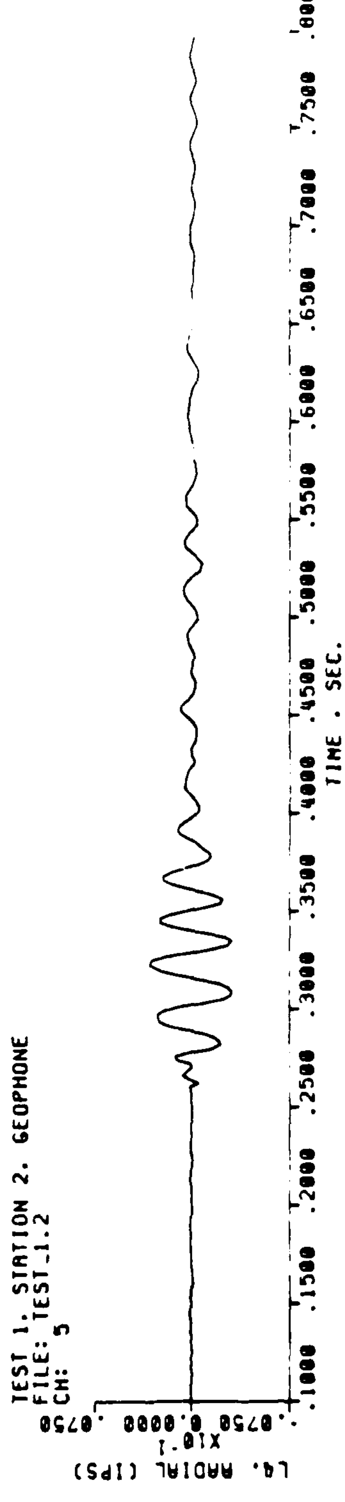
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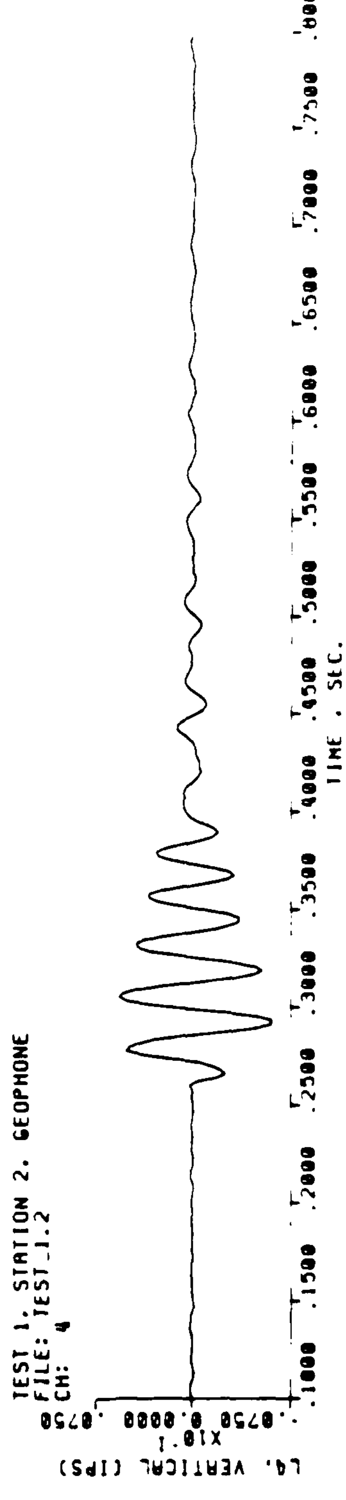
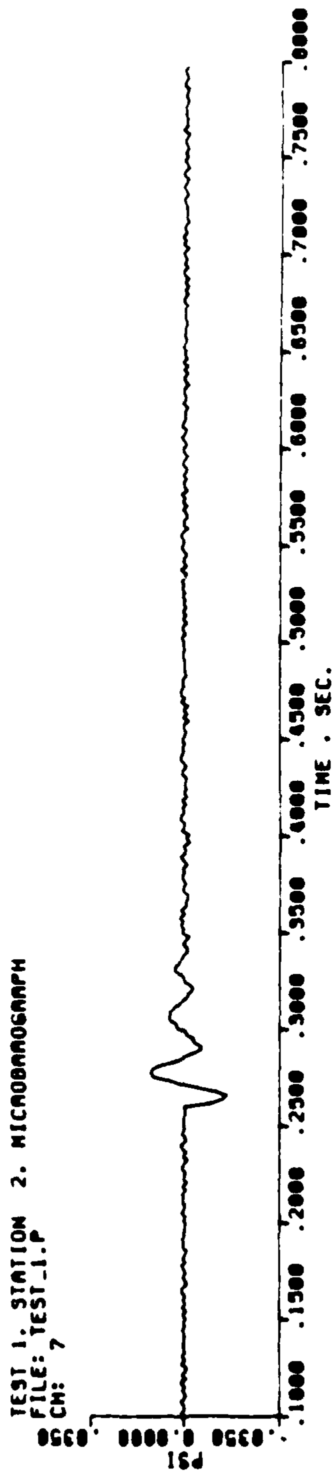
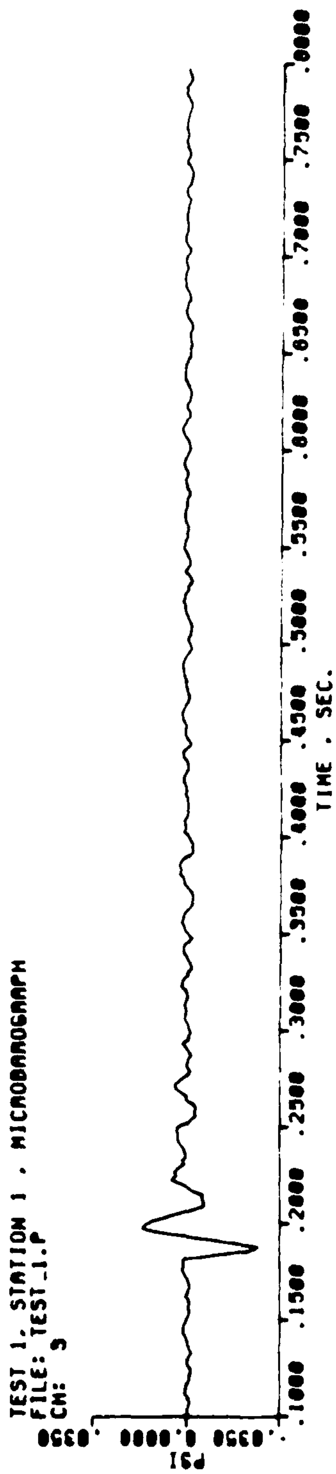
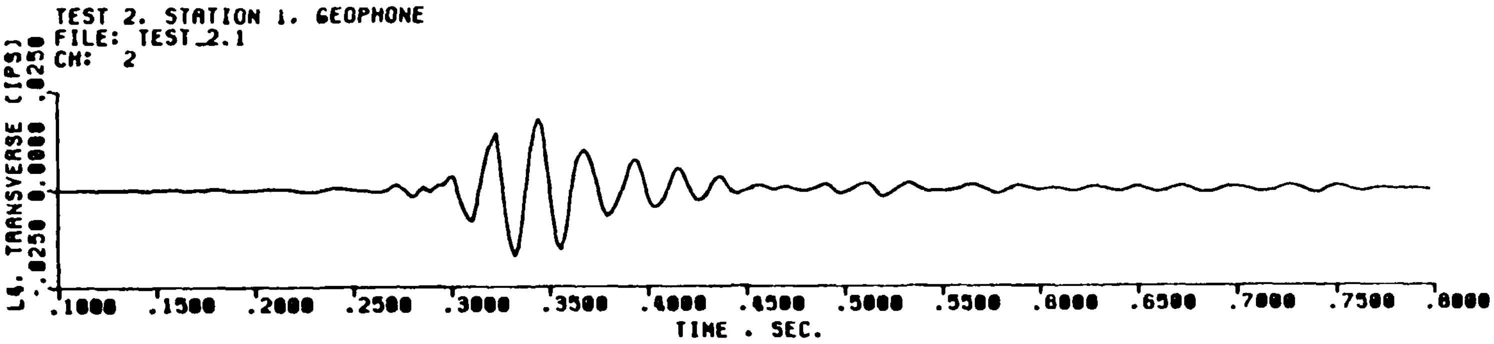
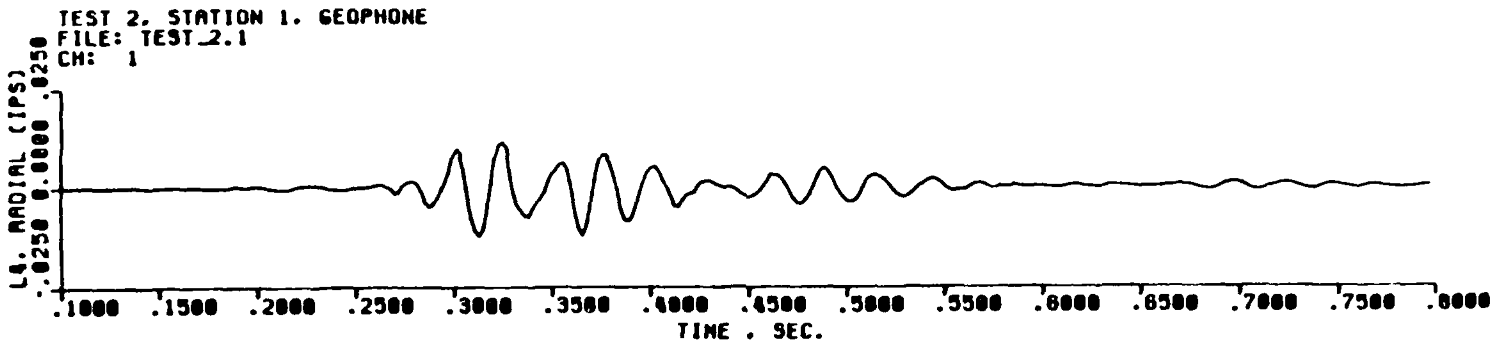
X10^-1
-.0750 0.0000 .0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.

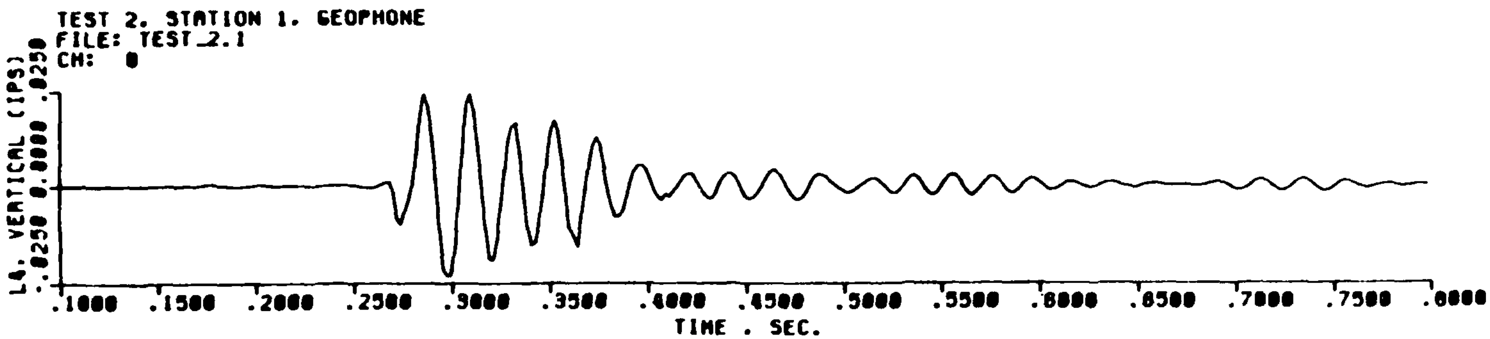

TEST 1. STATION 2. GEOPHONE
FILE: TEST_1.2
CH: 4
L4, VERTICAL (IPS)
X10^-1
-.0750 0.0000 .0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.

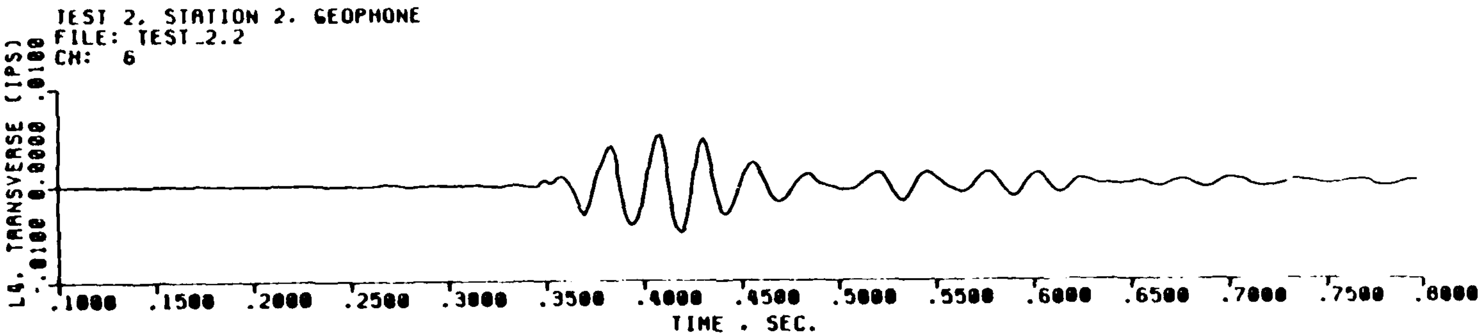

TEST 1. STATION 2. MICROBAROGRAPH
FILE: TEST_1.P
CH: 7
PSI
.0350
0.0000
.0350
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.

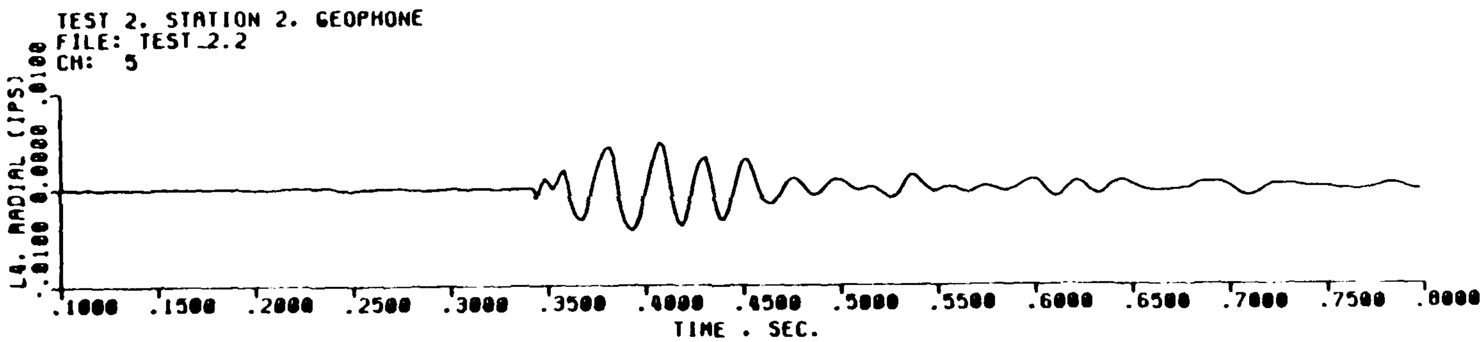

TEST 1. STATION 1 . MICROBAROGRAPH
FILE: TEST_1.P
CH: 5
PSI
.0350
0.0000
.0350
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.

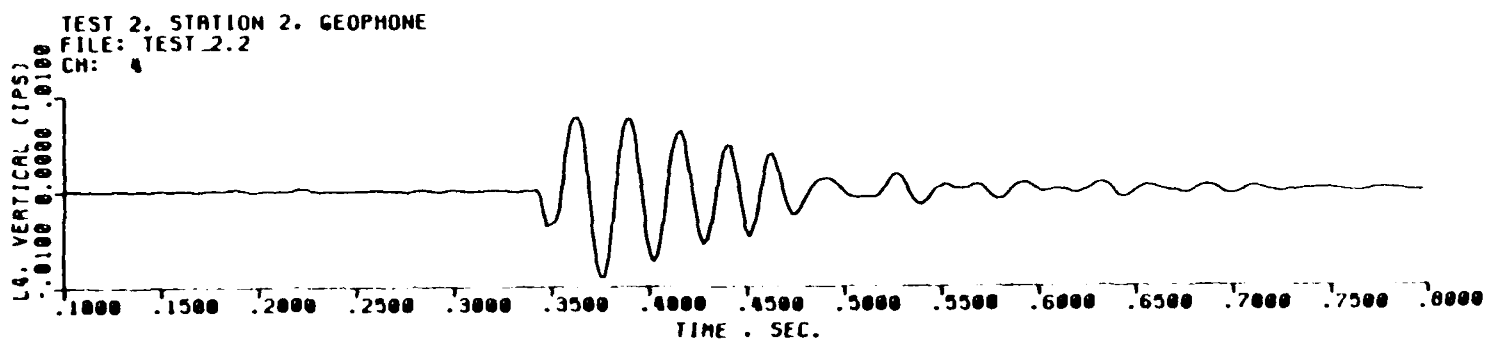

TEST 2. STATION 1. GEOPHONE
FILE: TEST_2.1
CH: 2
L4, TRANSVERSE (IPS)
.0250
0.0000
-.0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

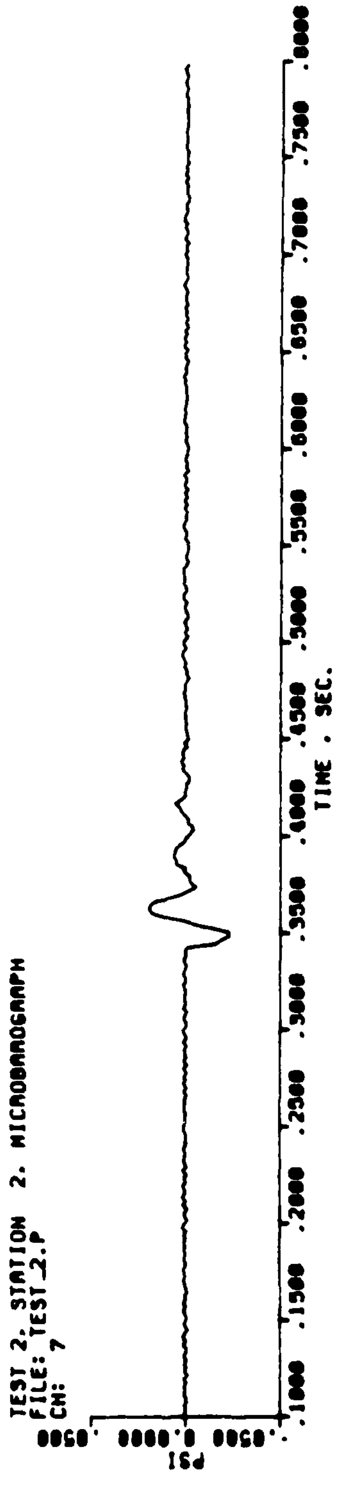

TEST 2. STATION 1. GEOPHONE
FILE: TEST_2.1
CH: 1
L4, RADIAL (IPS)
.0250
0.0000
-.0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

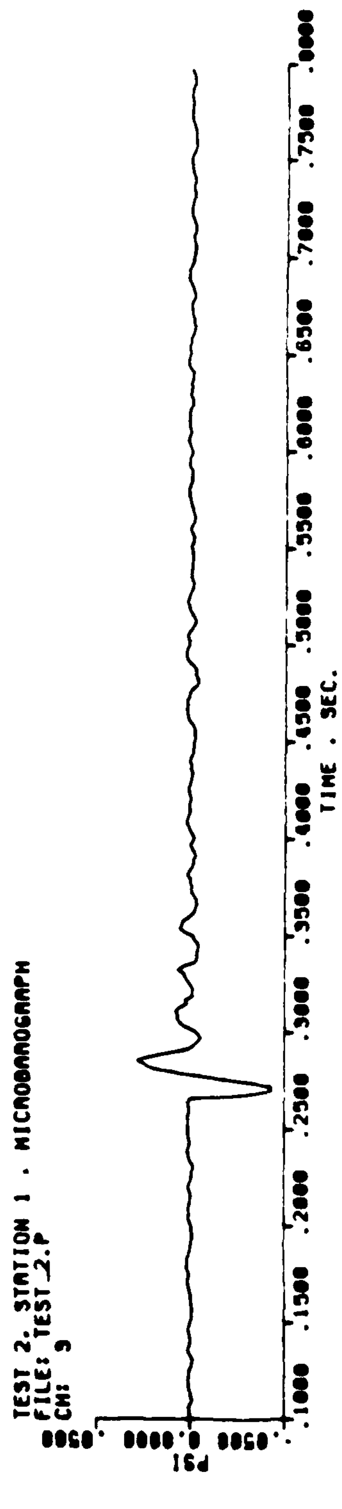

TEST 2. STATION 1. GEOPHONE
FILE: TEST_2.1
CH: 0
L4, VERTICAL (IPS)
.0250
0.0000
-.0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

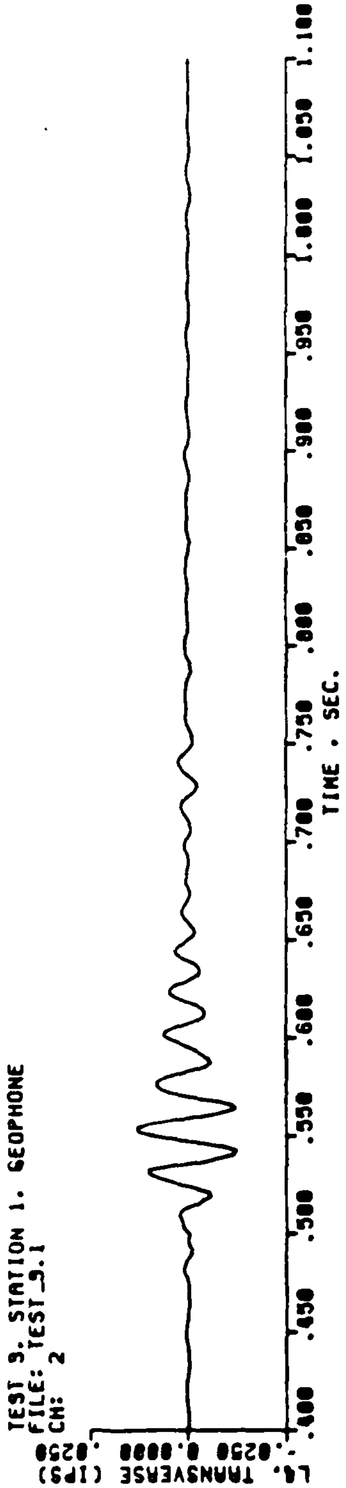

TEST 2. STATION 2. GEOPHONE
FILE: TEST_2.2
CH: 6
L4. TRANSVERSE (IPS)
.0100
0.0000
.0100
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

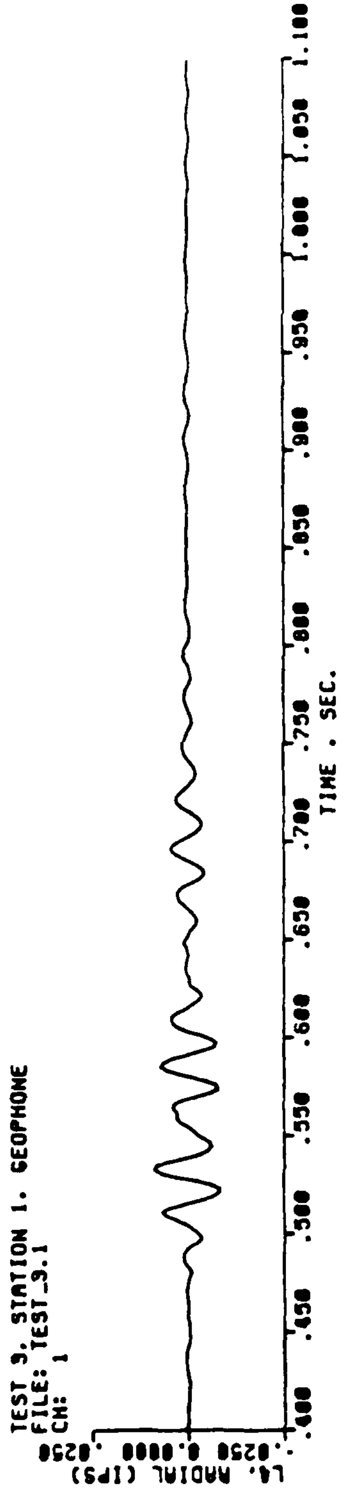

TEST 2. STATION 2. GEOPHONE
FILE: TEST_2.2
CH: 5
L4. RADIAL (IPS)
.0100
0.0000
.0100
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

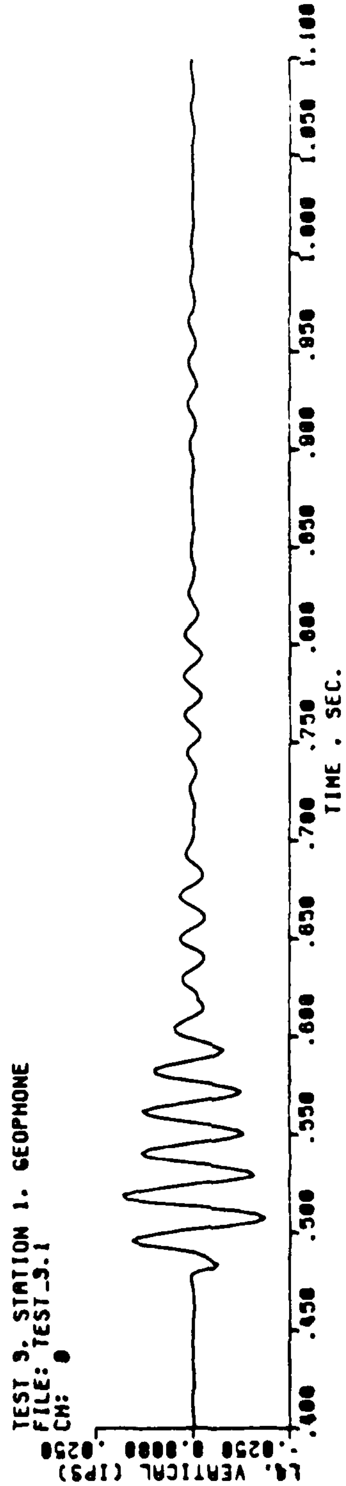

TEST 2. STATION 2. GEOPHONE
FILE: TEST_2.2
CH: 4
L4. VERTICAL (IPS)
.0100
0.0000
.0100
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

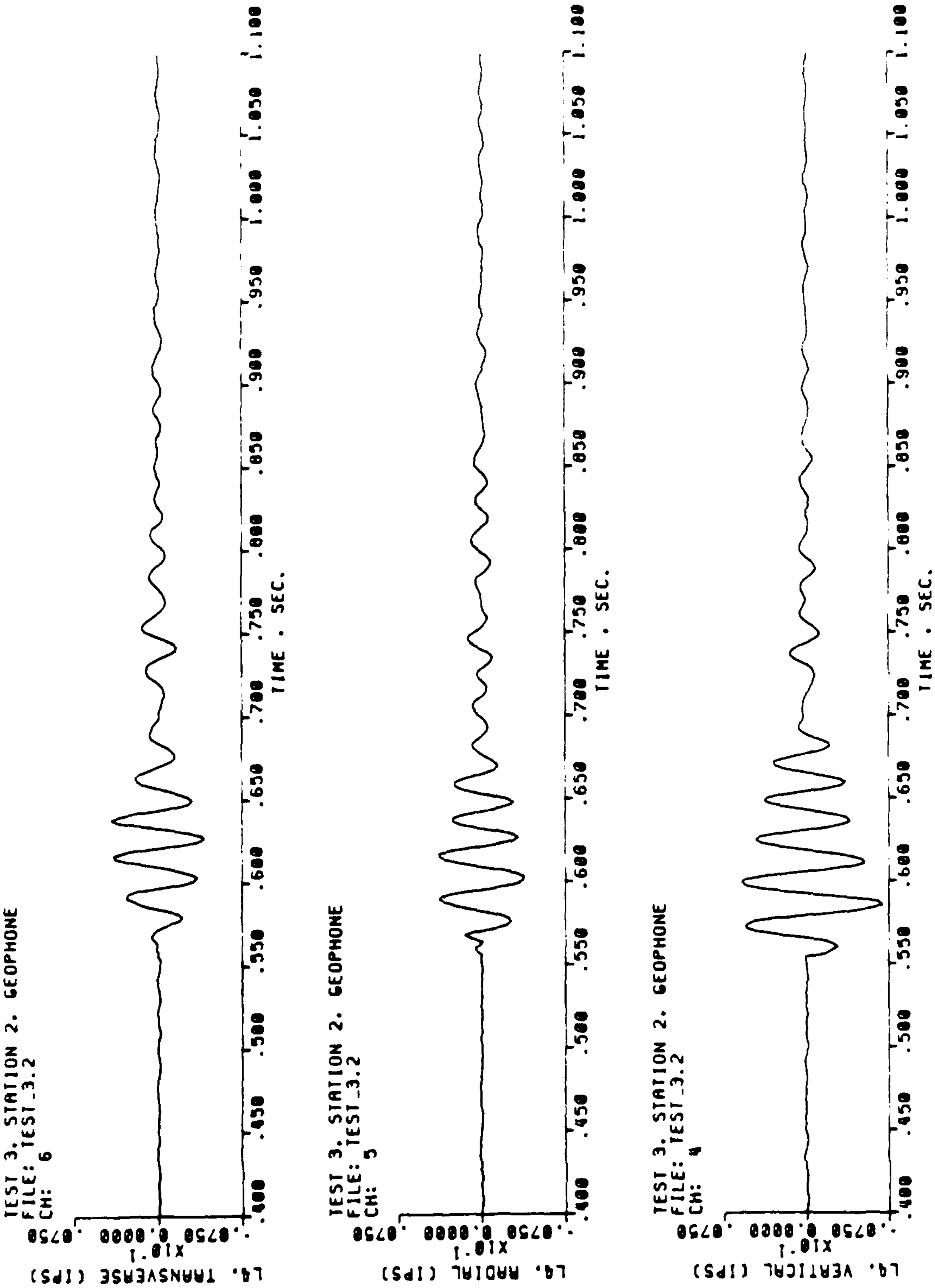

TEST 2. STATION 2. MICROBAROGRAPH
FILE: TEST_2.P
CH: 7
PSI
TIME , SEC.

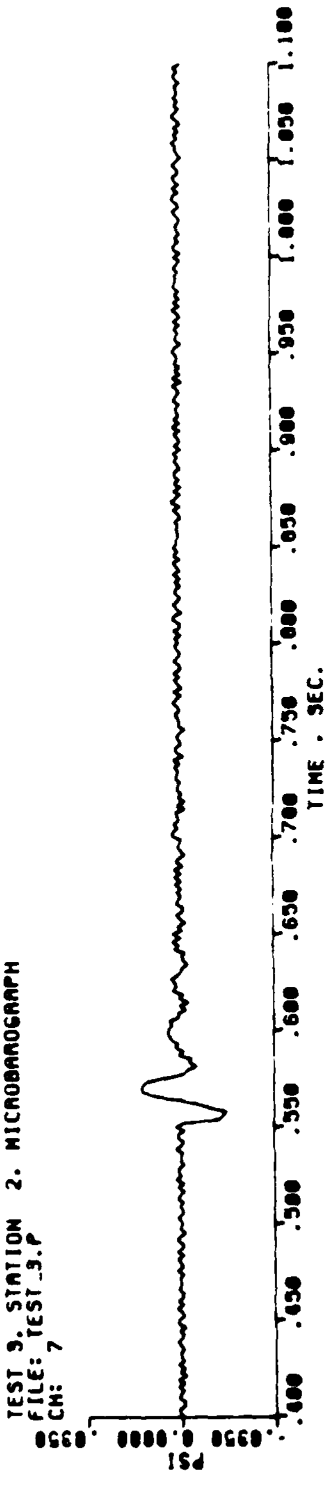

TEST 2. STATION 1 . MICROBAROGRAPH
FILE: TEST_2.P
CH: 9
PSI
TIME , SEC.

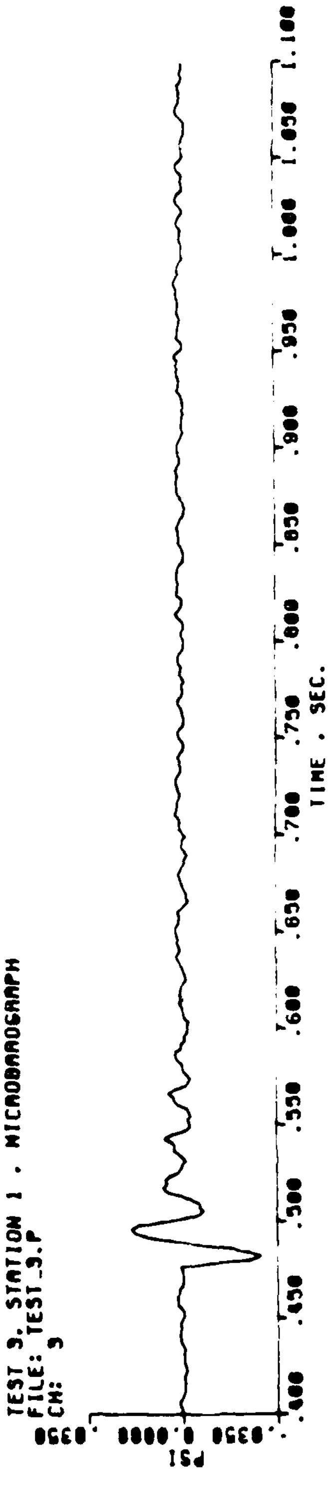

TEST 9. STATION 1. GEOPHONE
FILE: TEST_9.1
CH: 2
L4. TRANSVERSE (IPS)
-.0250 0.0000 .0250
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.

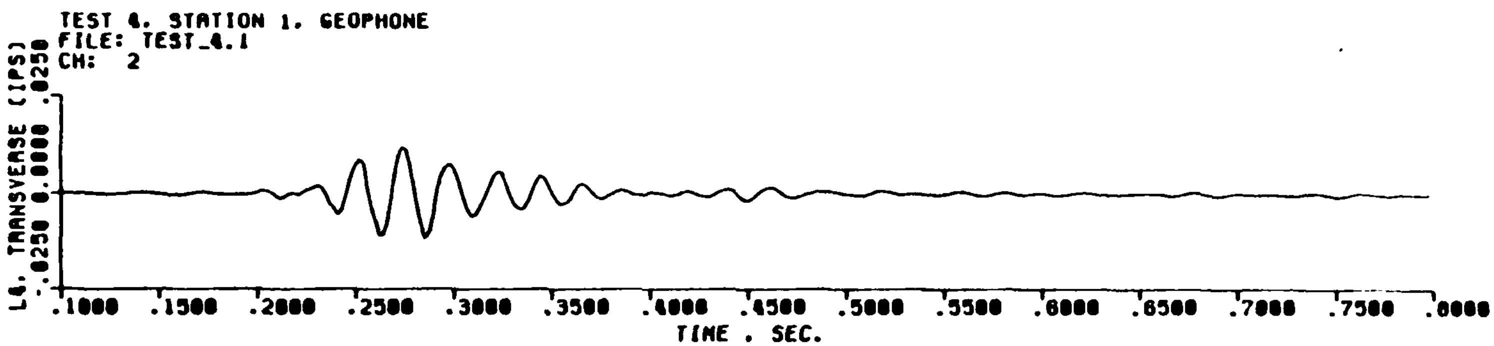

TEST 9. STATION 1. GEOPHONE
FILE: TEST_9.1
CH: 1
L4. RADIAL (IPS)
-.0250 0.0000 .0250
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.

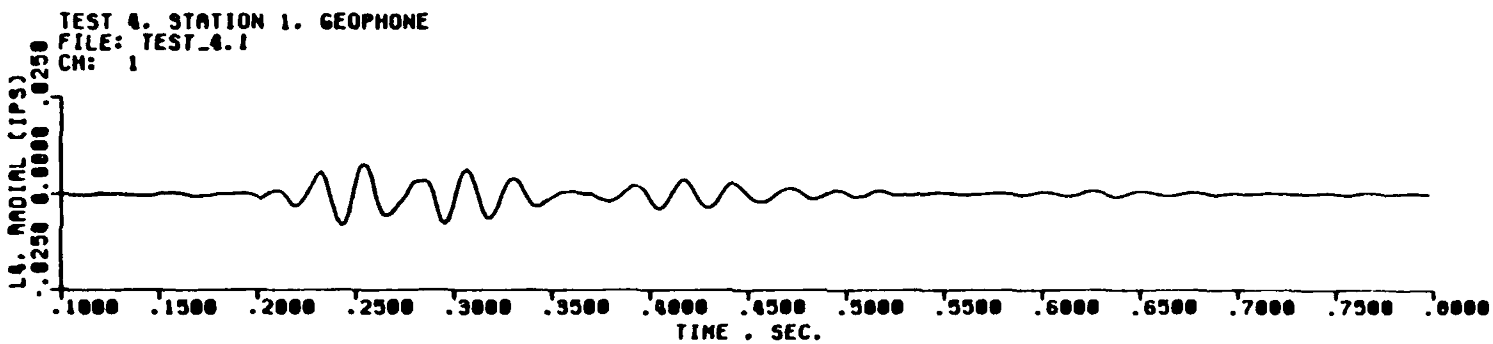

TEST 9. STATION 1. GEOPHONE
FILE: TEST_9.1
CH: 0
L4. VERTICAL (IPS)
-.0250 0.0000 .0250
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.

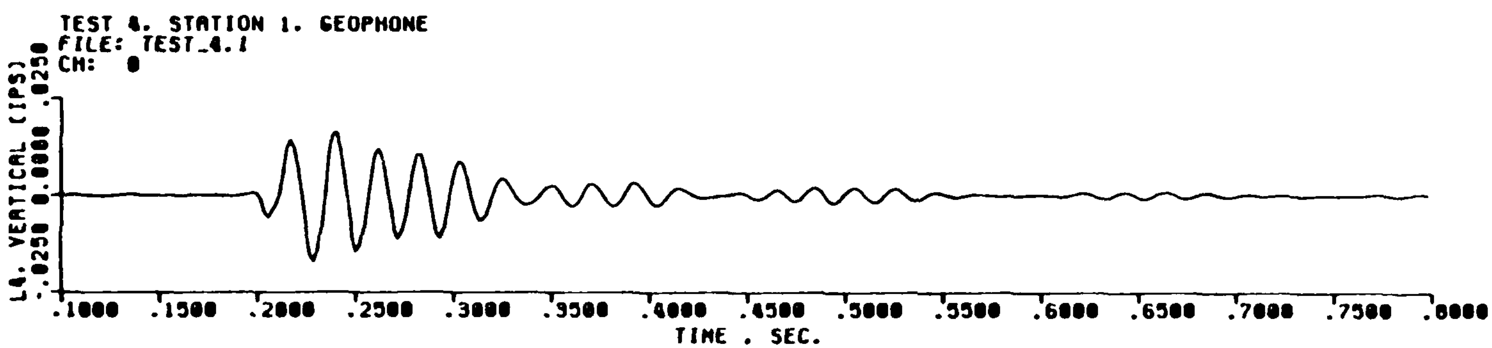

TEST 3. STATION 2. GEOPHONE
FILE: TEST_3.2
CH: 6
L4, TRANSVERSE (IPS)
X10^-1
-.0750 0.0000 .0750
TEST 3. STATION 2. GEOPHONE
FILE: TEST_3.2
CH: 5
L4, RADIAL (IPS)
X10^-1
-.0750 0.0000 .0750
TEST 3. STATION 2. GEOPHONE
FILE: TEST_3.2
CH: 4
L4, VERTICAL (IPS)
X10^-1
-.0750 0.0000 .0750
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.

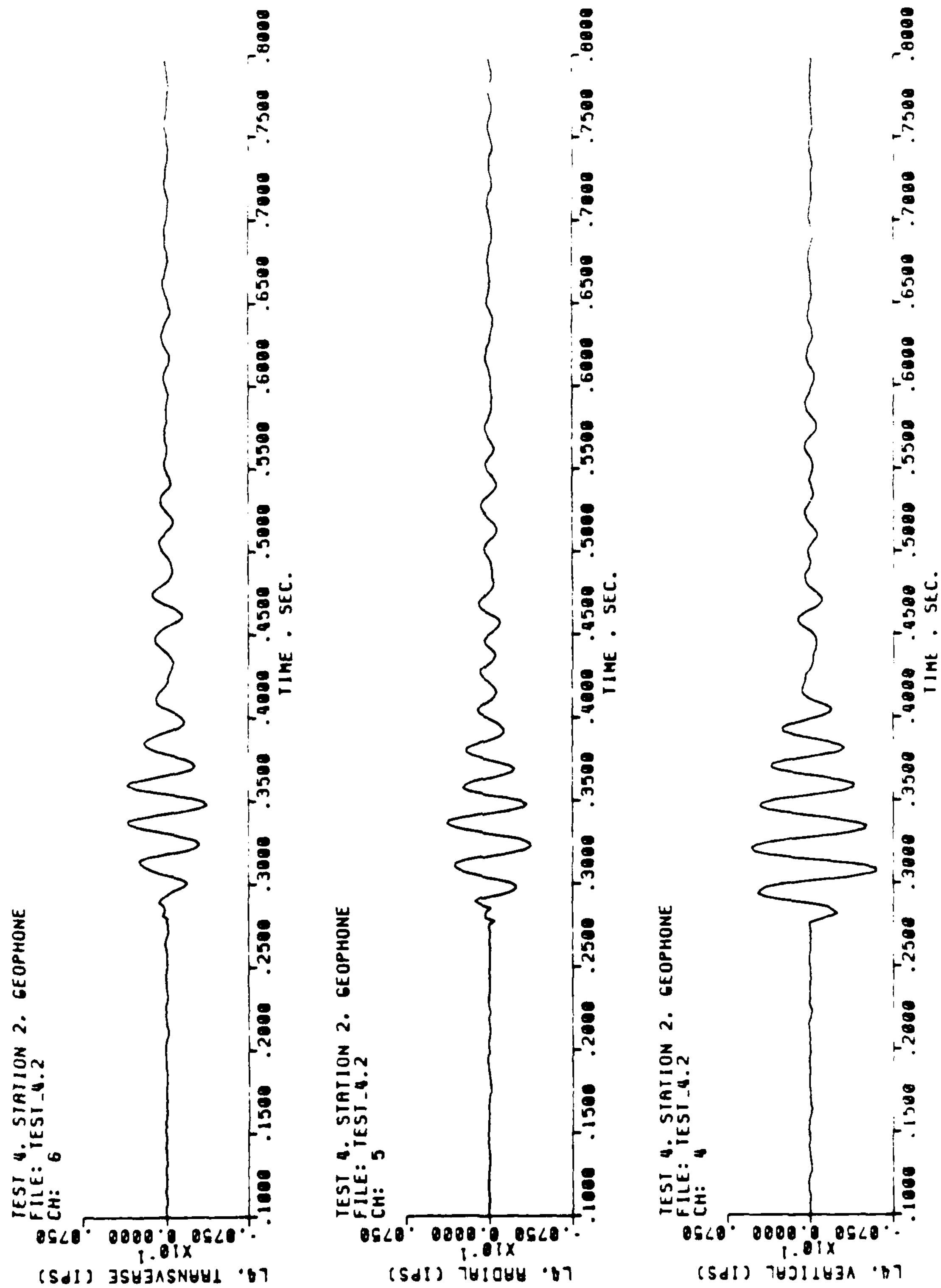

TEST 9. STATION 2. MICROBAROGRAPH
FILE: TEST_9.P
CH: 7
PSI
TIME , SEC.

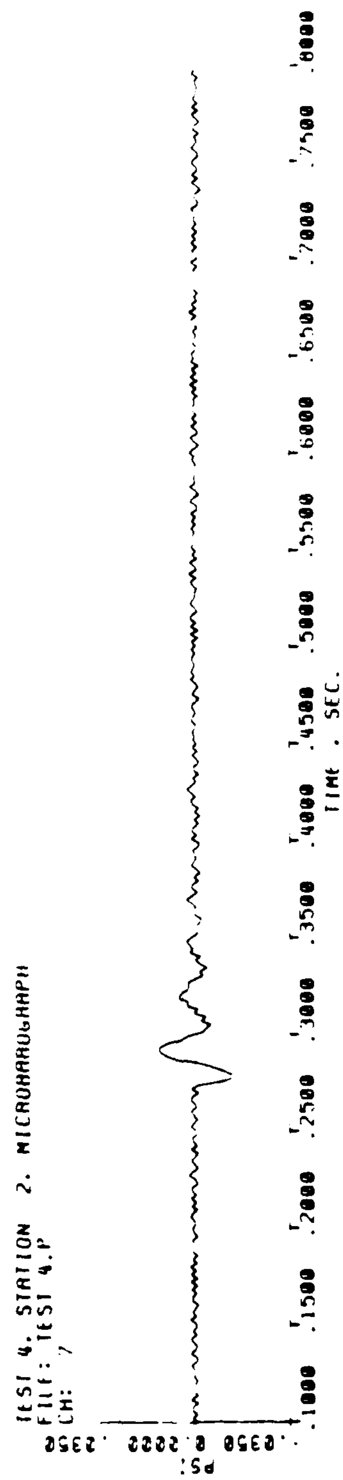

TEST 9. STATION 1 . MICROBAROGRAPH
FILE: TEST_9.P
CH: 9
PSI
TIME , SEC.

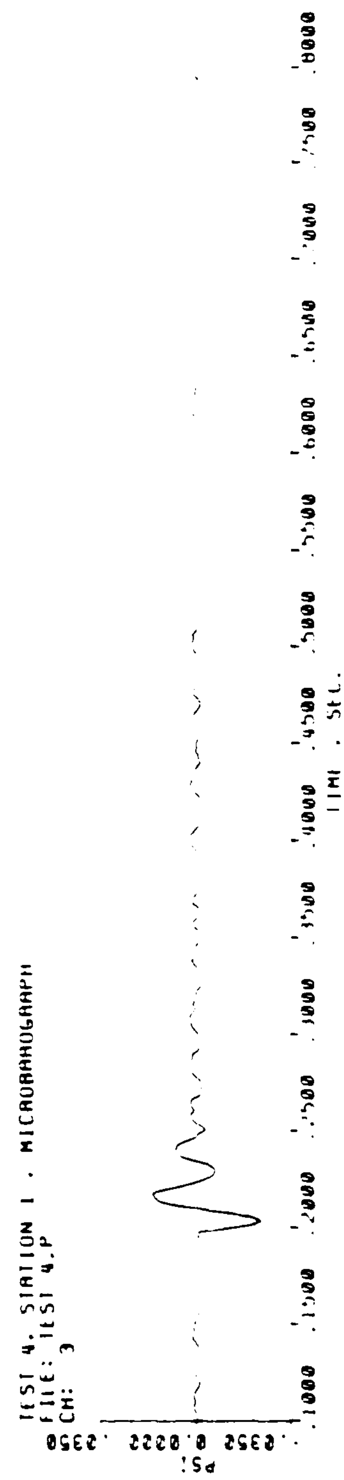

TEST 4. STATION 1. GEOPHONE
FILE: TEST_4.1
CH: 2
L4. TRANSVERSE (IPS)
-.0250 0.0000 .0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

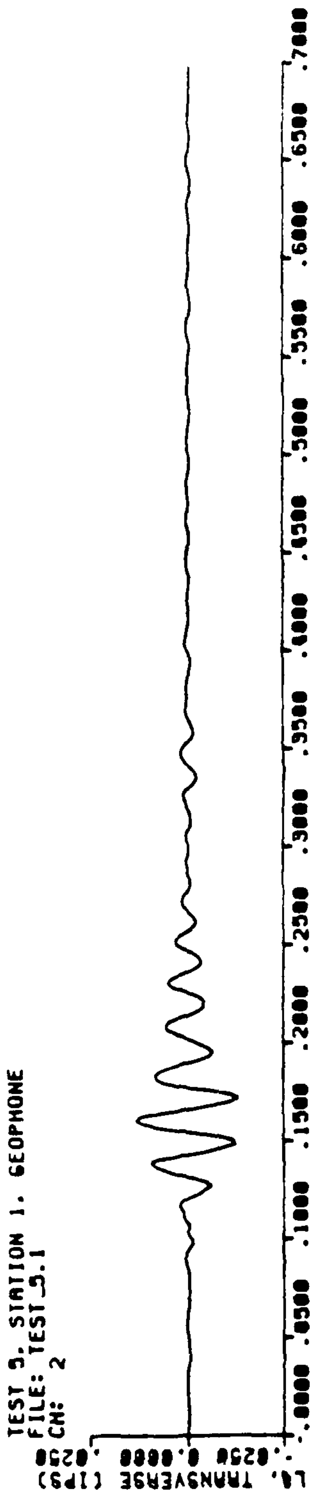

TEST 4. STATION 1. GEOPHONE
FILE: TEST_4.1
CH: 1
L4. RADIAL (IPS)
-.0250 0.0000 .0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

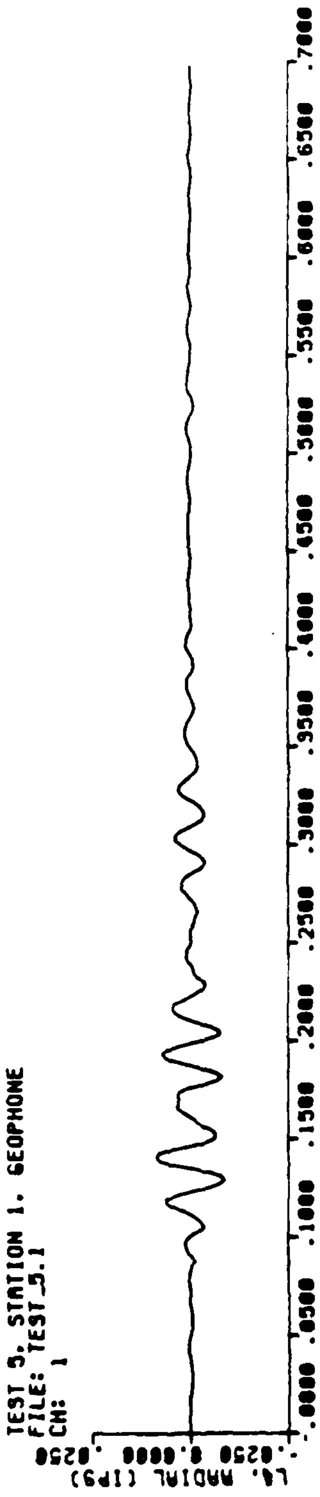

TEST 4. STATION 1. GEOPHONE
FILE: TEST_4.1
CH: 0
L4. VERTICAL (IPS)
-.0250 0.0000 .0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

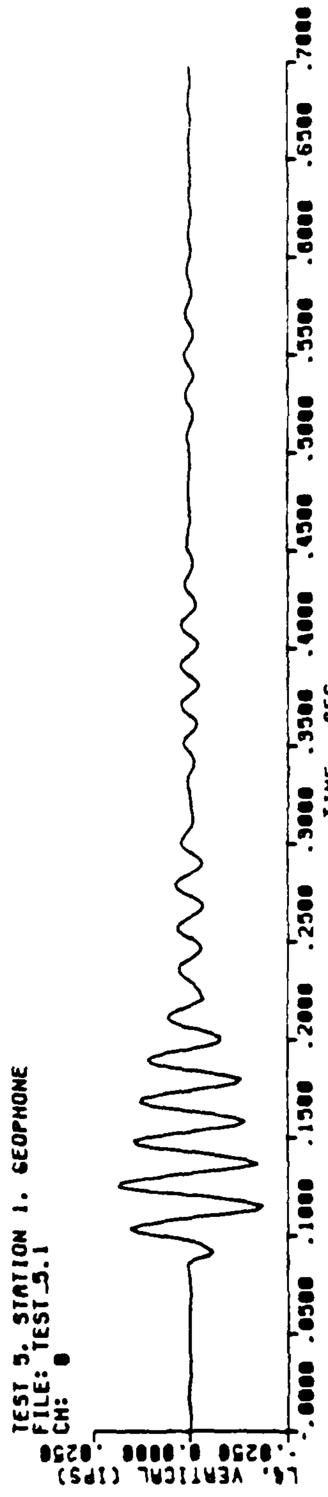

TEST 4. STATION 2. GEOPHONE
FILE: TEST_4.2
CH: 6
L4. TRANSVERSE (IPS)
X10⁻¹
TEST 4. STATION 2. GEOPHONE
FILE: TEST_4.2
CH: 5
L4. RADIAL (IPS)
X10⁻¹
TEST 4. STATION 2. GEOPHONE
FILE: TEST_4.2
CH: 4
L4. VERTICAL (IPS)
X10⁻¹
TIME . SEC.

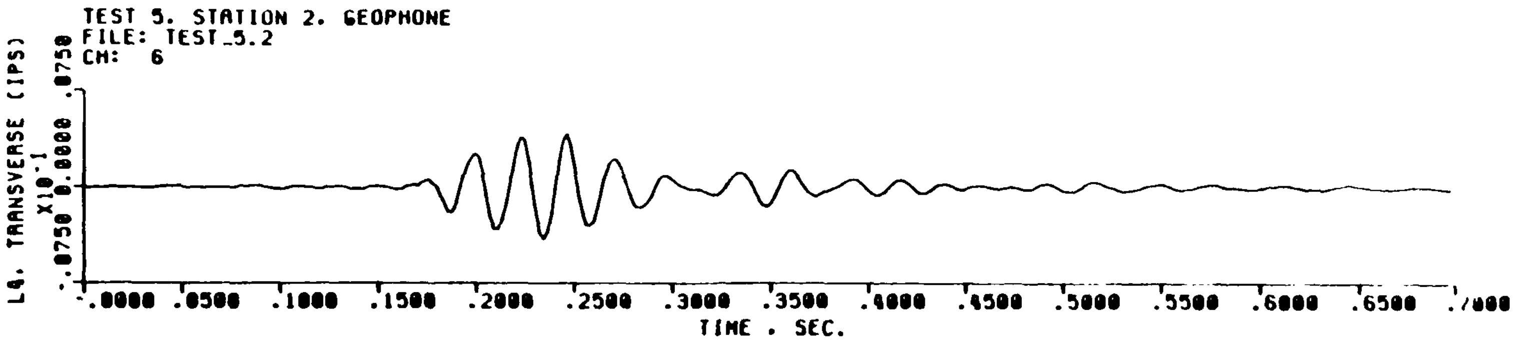

TEST 4. STATION 2. MICROBAROGRAPH
FILE: TEST 4.P
CH: 7
PSI
-.0350 0.2000 .2350
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.

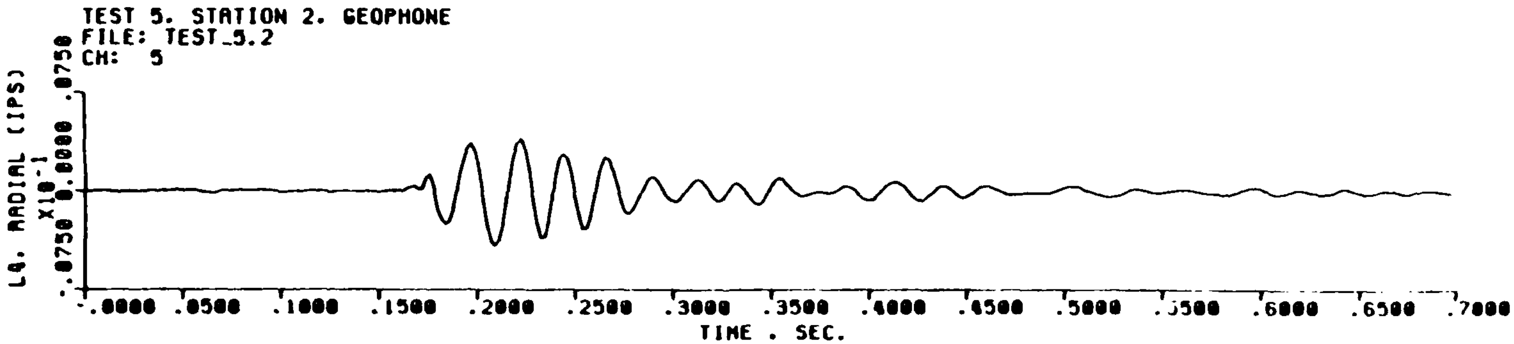

TEST 4. STATION 1 . MICROBAROGRAPH
FILE: TEST 4.P
CH: 3
PSI
-.0352 0.0222 .2350
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.

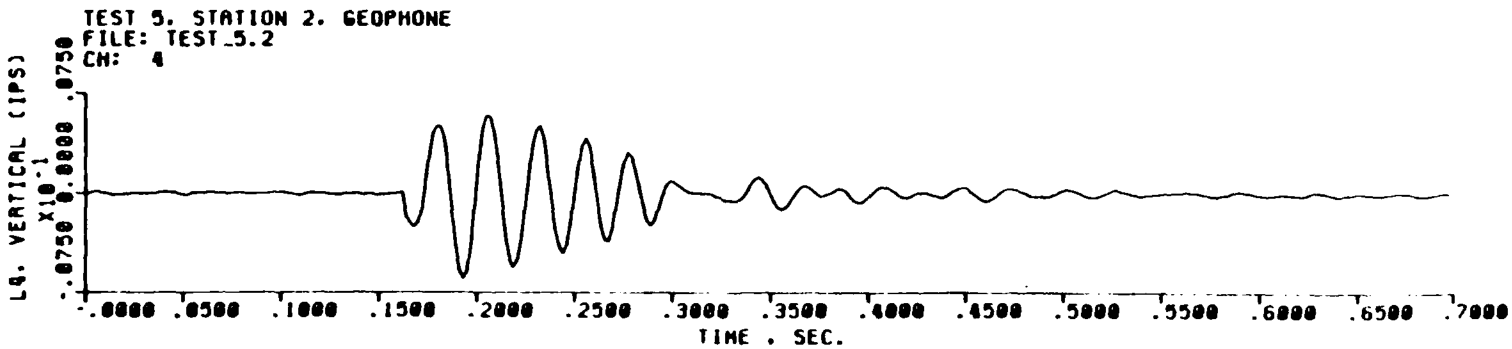

TEST 5, STATION 1, GEOPHONE
FILE: TEST_5.1
CH: 2
L4, TRANSVERSE (IPS)
TIME , SEC.

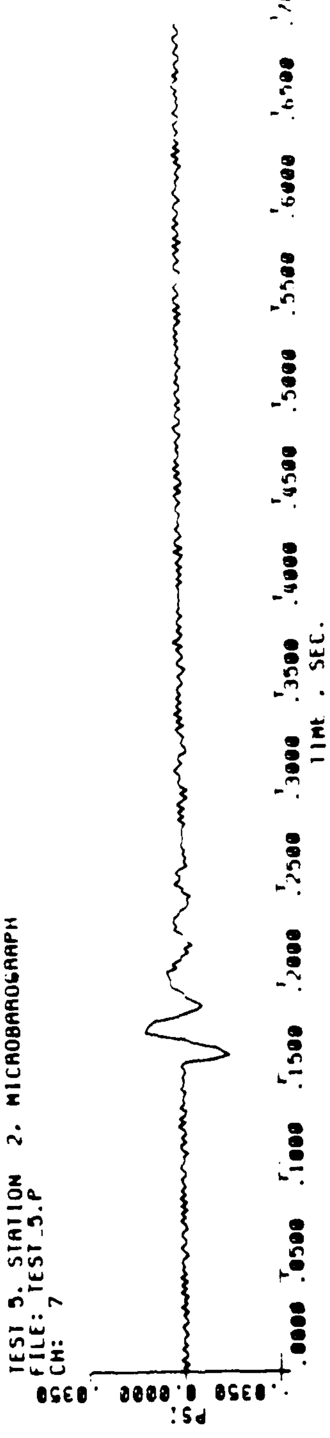

TEST 5, STATION 1, GEOPHONE
FILE: TEST_5.1
CH: 1
L4, RADIAL (IPS)
TIME , SEC.

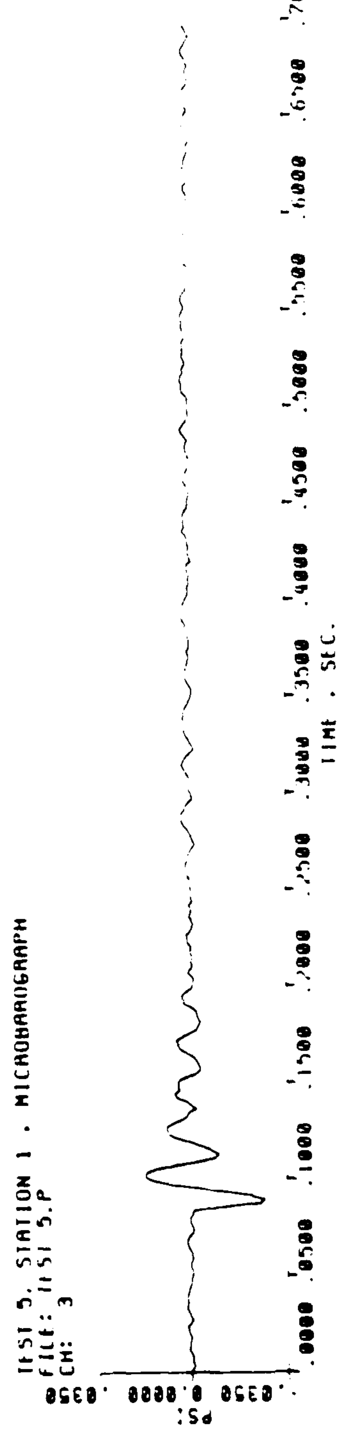

TEST 5, STATION 1, GEOPHONE
FILE: TEST_5.1
CH: 0
L4, VERTICAL (IPS)
TIME , SEC.

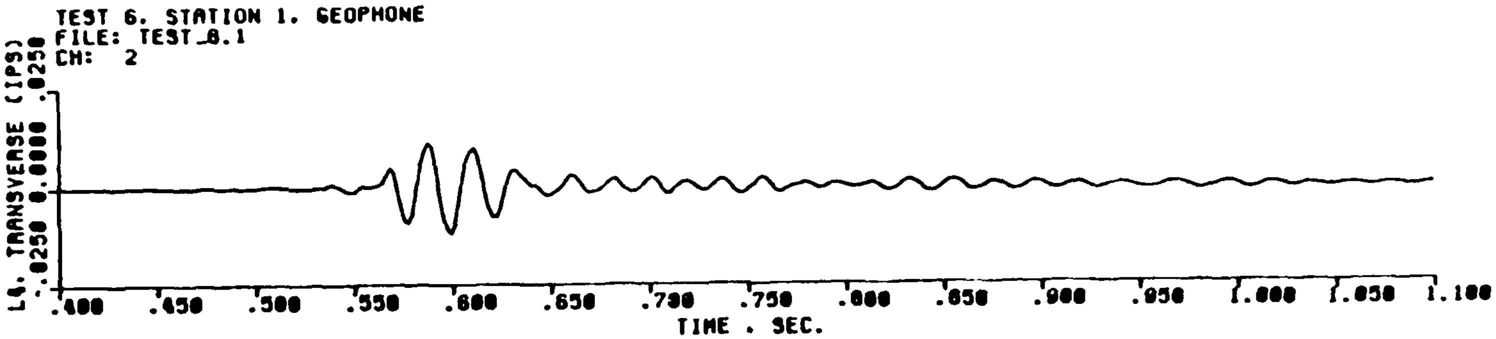

TEST 5. STATION 2. GEOPHONE
FILE: TEST_5.2
CH: 6
L4. TRANSVERSE (IPS)
X10^-1
.0750
0.0000
-.0750
.0000 .0500 .1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000
TIME . SEC.

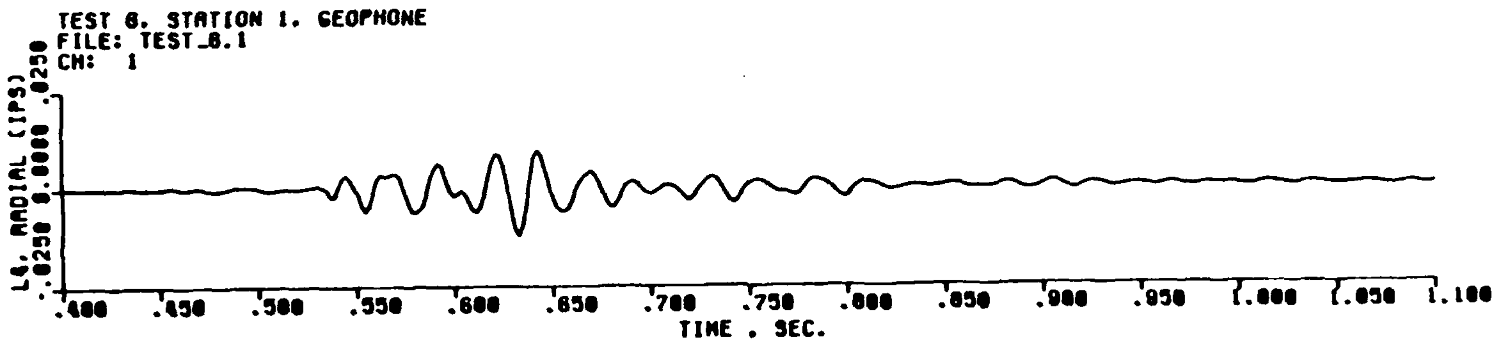

TEST 5. STATION 2. GEOPHONE
FILE: TEST_5.2
CH: 5
L4. RADIAL (IPS)
X10^-1
.0750
0.0000
-.0750
.0000 .0500 .1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000
TIME . SEC.

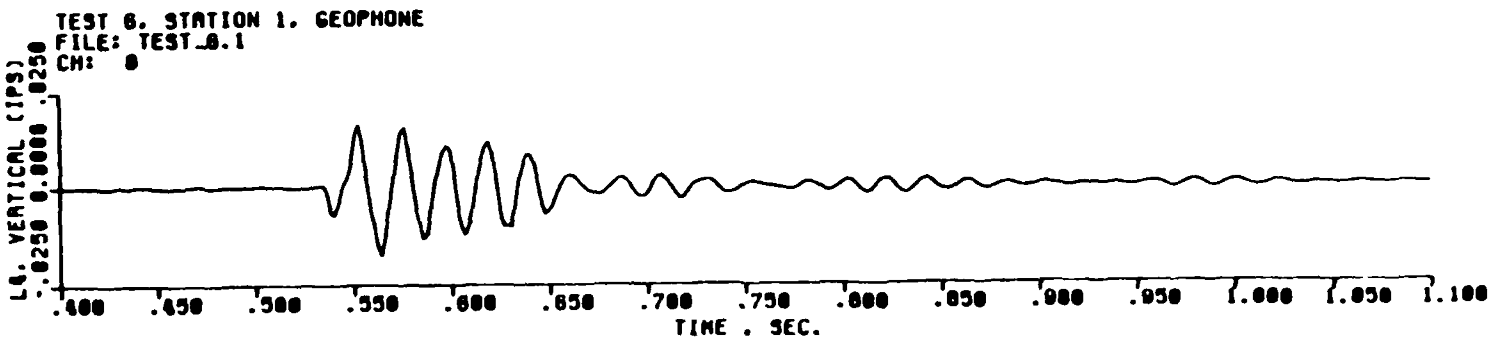

TEST 5. STATION 2. GEOPHONE
FILE: TEST_5.2
CH: 4
L4. VERTICAL (IPS)
X10^-1
.0750
0.0000
-.0750
.0000 .0500 .1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000
TIME . SEC.

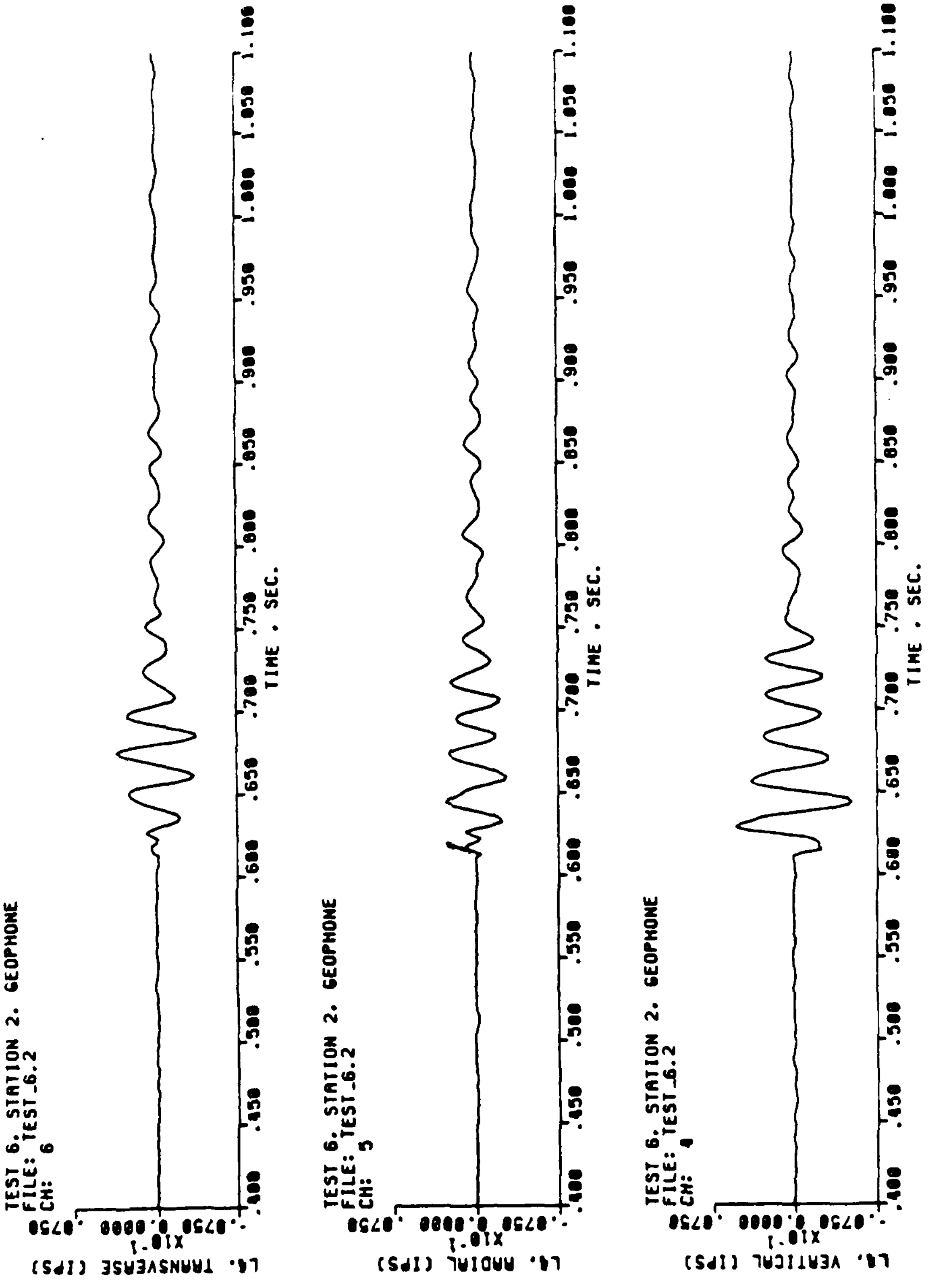

TEST 5, STATION 2, MICROBAROGRAPH
FILE: TEST 5.P
CH: 7
PSI
TIME , SEC.


TEST 5, STATION 1 , MICROBAROGRAPH
FILE: TEST 5.P
CH: 3
PSI
TIME , SEC.

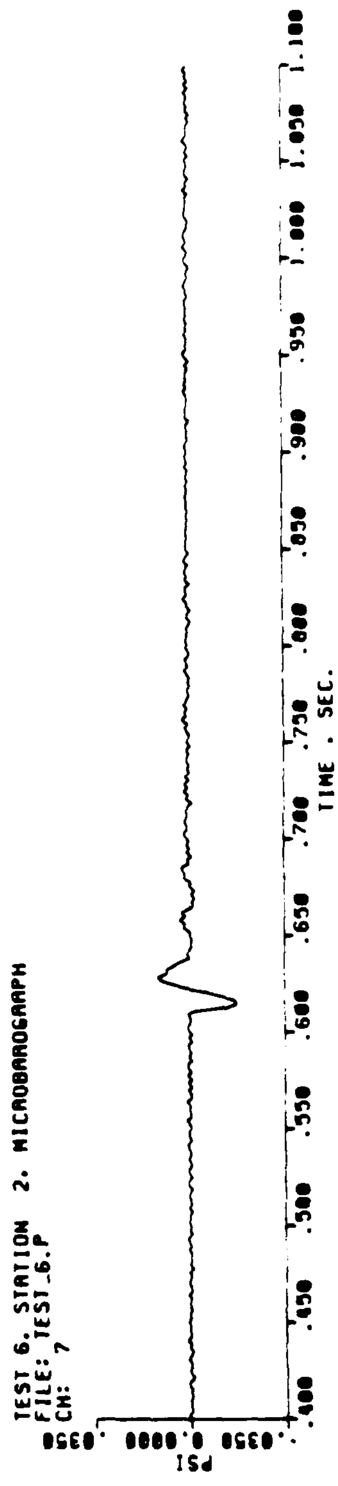

TEST 6. STATION 1. GEOPHONE
FILE: TEST_6.1
CH: 2
L4. TRANSVERSE (IPS)
.0250
0.0000
-.0250
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.

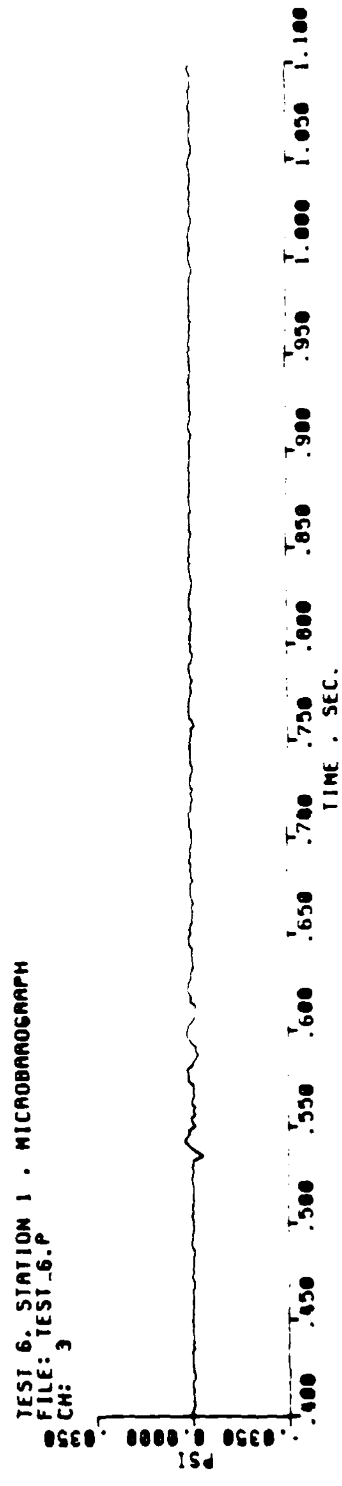

TEST 6. STATION 1. GEOPHONE
FILE: TEST_6.1
CH: 1
L4. RADIAL (IPS)
.0250
0.0000
-.0250
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.

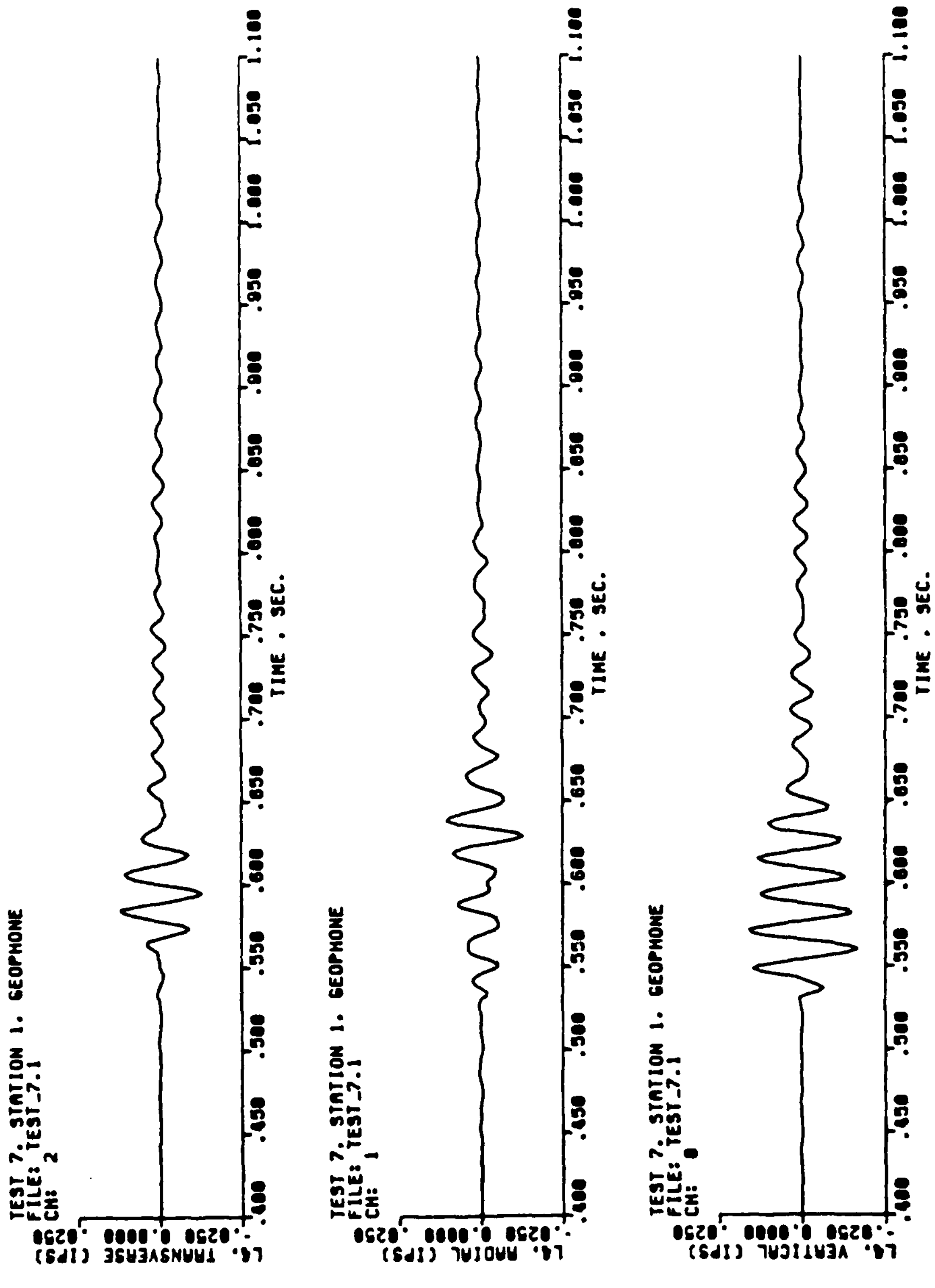

TEST 6. STATION 1. GEOPHONE
FILE: TEST_6.1
CH: 0
L4. VERTICAL (IPS)
.0250
0.0000
-.0250
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.

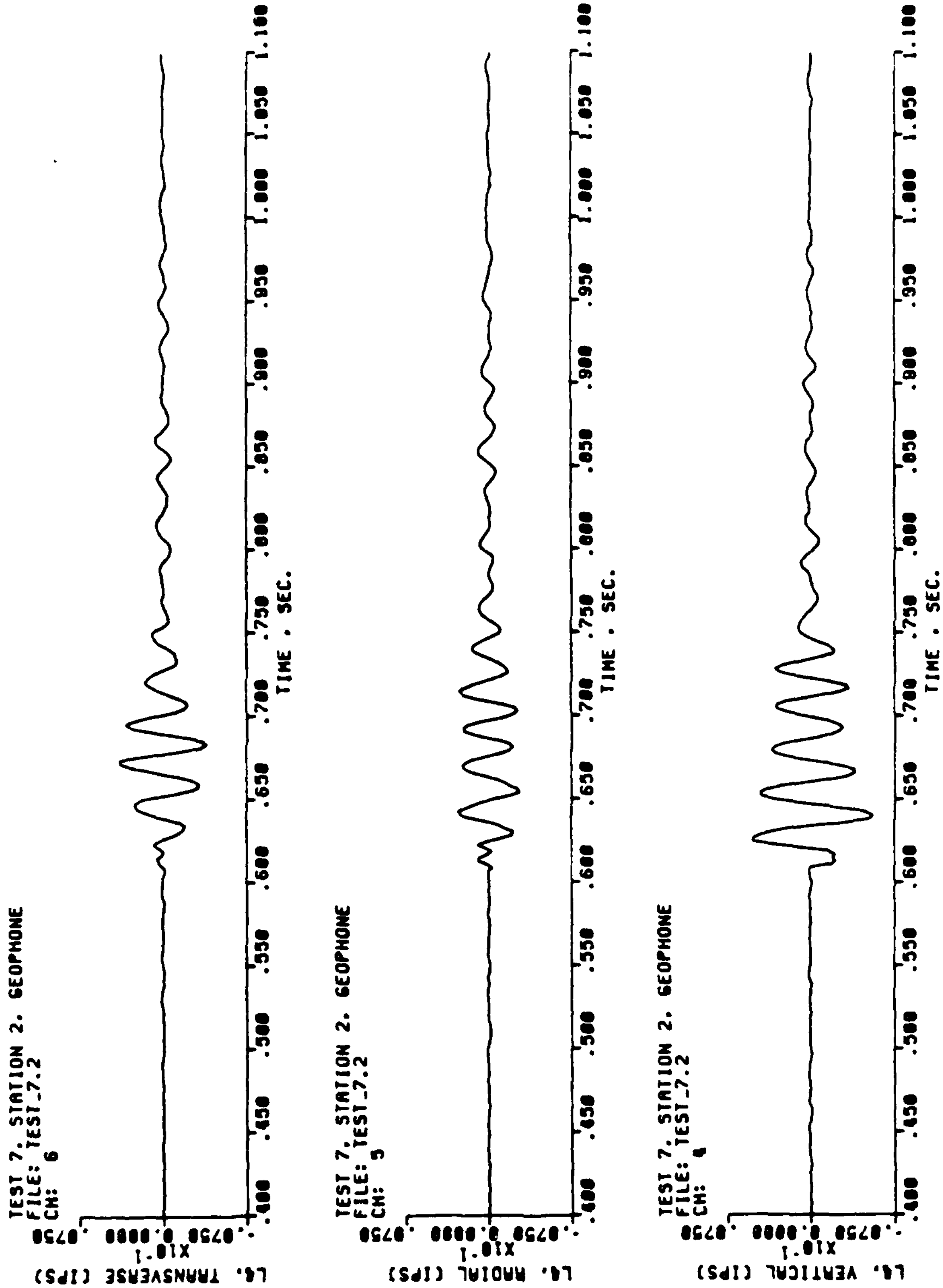


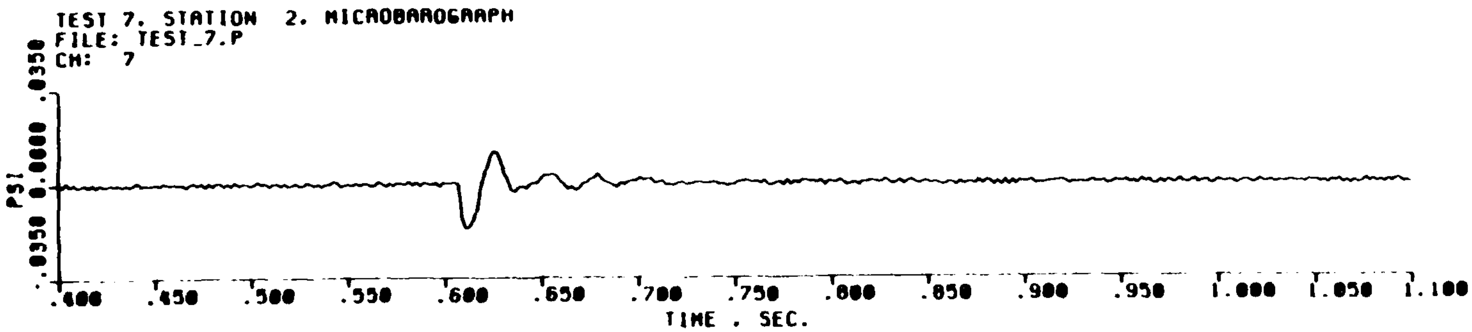
TEST 6. STATION 2. GEOPHONE
FILE: TEST_6.2
CH: 6
L4, TRANSVERSE (IPS)
X10^-1
TIME , SEC.
TEST 6. STATION 2. GEOPHONE
FILE: TEST_6.2
CH: 5
L4, RADIAL (IPS)
X10^-1
TIME , SEC.
TEST 6. STATION 2. GEOPHONE
FILE: TEST_6.2
CH: 4
L4, VERTICAL (IPS)
X10^-1
TIME , SEC.

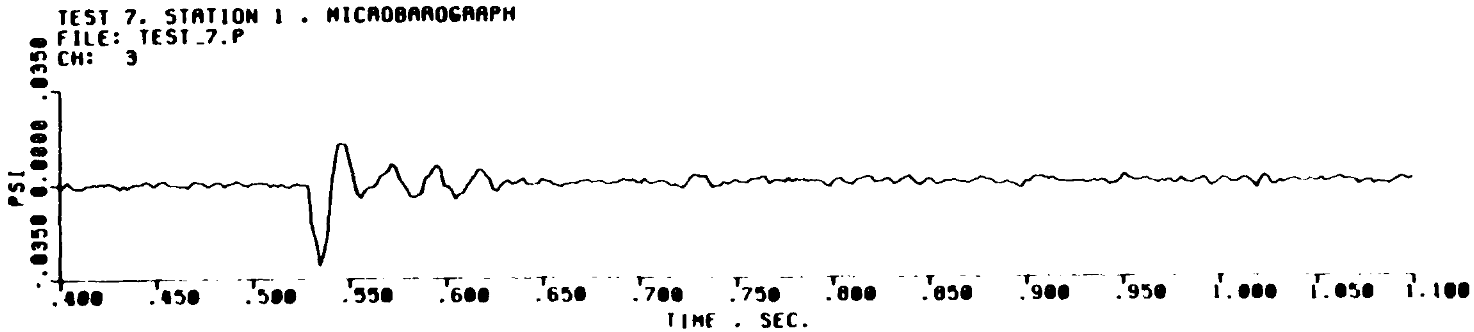

TEST 6. STATION 2. MICROBAROGRAPH
FILE: TEST_6.P
CH: 7
PSI
.0350
0.0000
TIME . SEC.
.400
.450
.500
.550
.600
.650
.700
.750
.800
.850
.900
.950
1.000
1.050
1.100

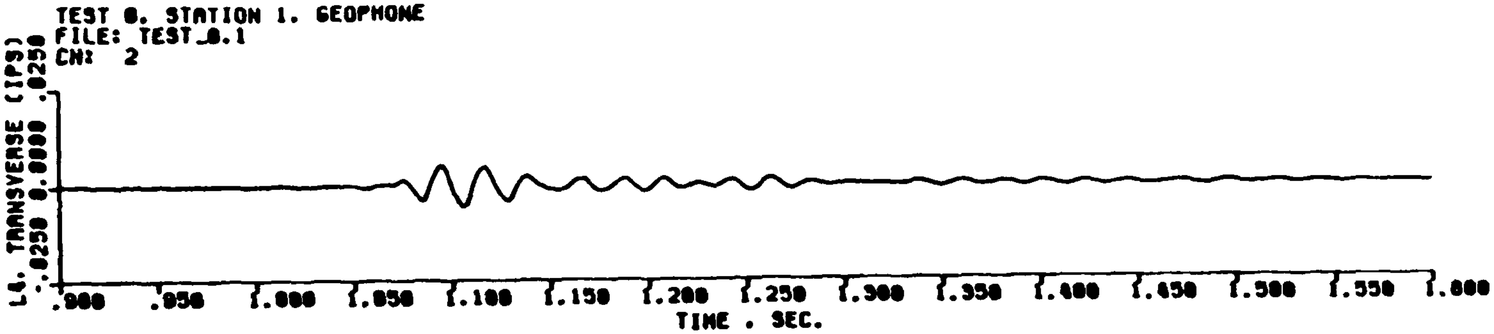

TEST 6. STATION 1 . MICROBAROGRAPH
FILE: TEST_6.P
CH: 3
PSI
.0350
0.0000
TIME . SEC.
.400
.450
.500
.550
.600
.650
.700
.750
.800
.850
.900
.950
1.000
1.050
1.100

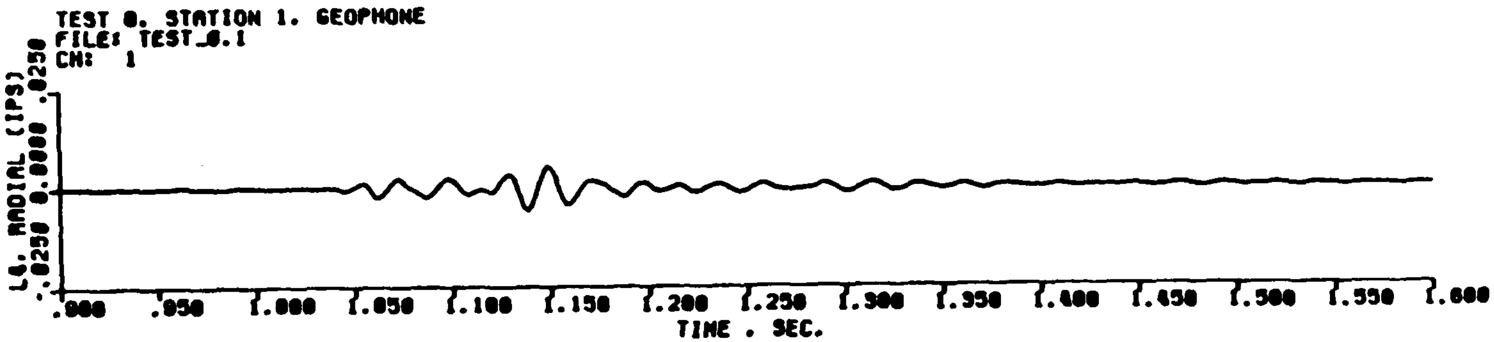

TEST 7. STATION 1. GEOPHONE
FILE: TEST_7.1
CH: 2
LG. TRANSVERSE (IPS)
.0250 0.0000 -.0250
TIME . SEC.
TEST 7. STATION 1. GEOPHONE
FILE: TEST_7.1
CH: 1
LG. RADIAL (IPS)
.0250 0.0000 -.0250
TIME . SEC.
TEST 7. STATION 1. GEOPHONE
FILE: TEST_7.1
CH: 0
LG. VERTICAL (IPS)
.0250 0.0000 -.0250
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.

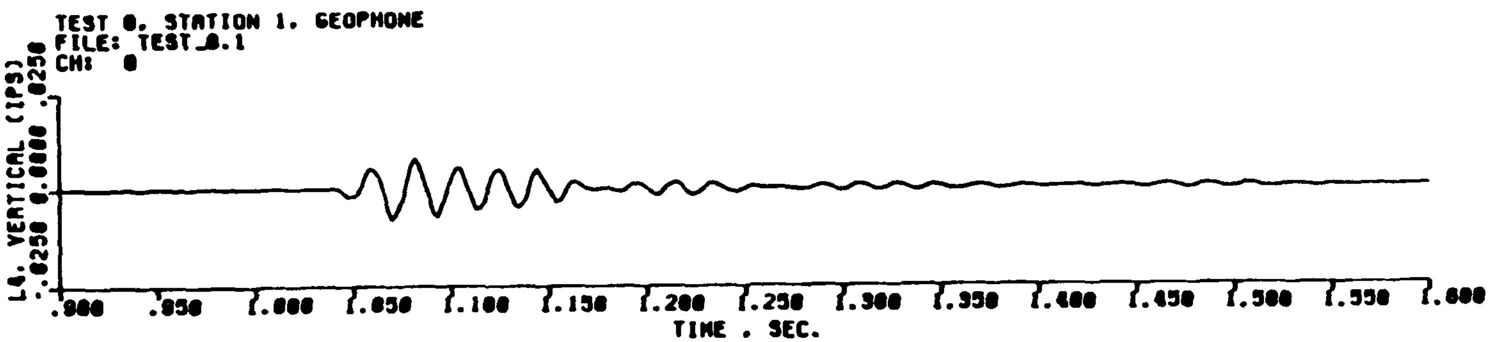

TEST 7. STATION 2. GEOPHONE
FILE: TEST_7.2
CH: 6
TEST 7. STATION 2. GEOPHONE
FILE: TEST_7.2
CH: 5
TEST 7. STATION 2. GEOPHONE
FILE: TEST_7.2
CH: 4
TIME , SEC.
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
-.0750 0.0000 .0750
X10-1
TRANSVERSE (IPS)
RADIAL (IPS)
VERTICAL (IPS)

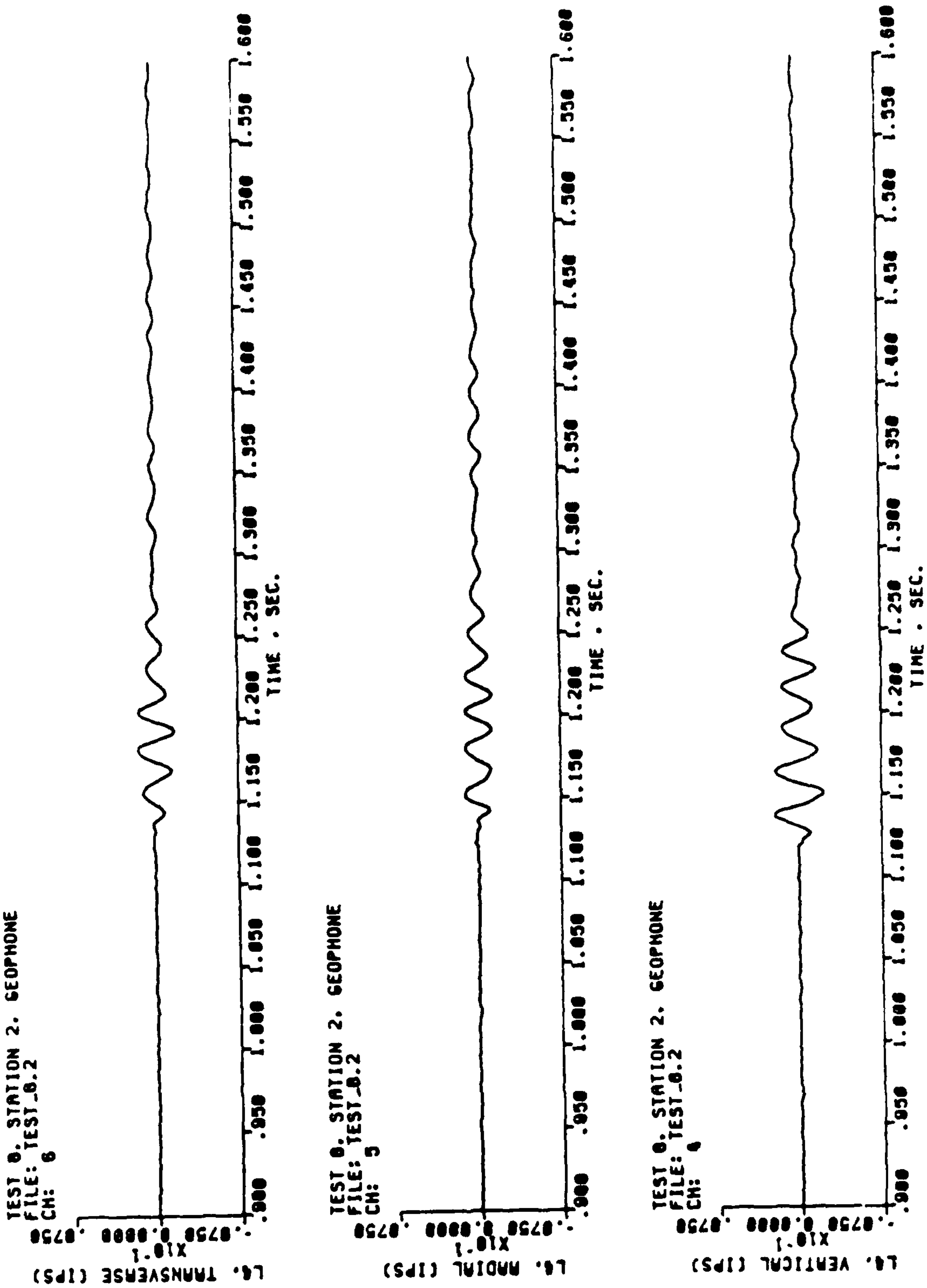

TEST 7. STATION 2. MICROBAROGRAPH
FILE: TEST_7.P
CH: 7
PSI
.0350
0.0000
-.0350
.400
.450
.500
.550
.600
.650
.700
.750
.800
.850
.900
.950
1.000
1.050
1.100
TIME . SEC.


TEST 7. STATION 1 . MICROBAROGRAPH
FILE: TEST_7.P
CH: 3
PSI
.0350
0.0000
-.0350
.400
.450
.500
.550
.600
.650
.700
.750
.800
.850
.900
.950
1.000
1.050
1.100
TIME . SEC.

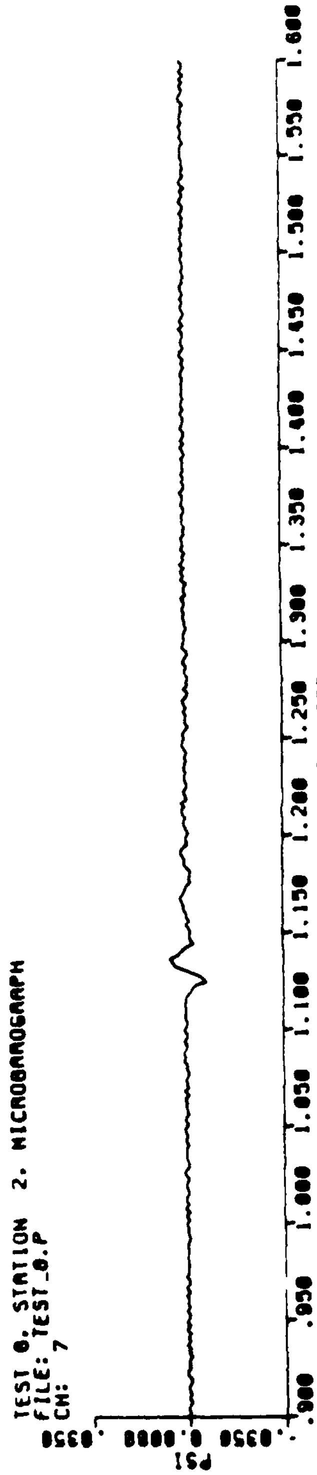

TEST 0. STATION 1. GEOPHONE
FILE: TEST_0.1
CH: 2
L4. TRANSVERSE (IPS)
-.0250 0.0000 .0250
.900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300 1.350 1.400 1.450 1.500 1.550 1.600
TIME . SEC.

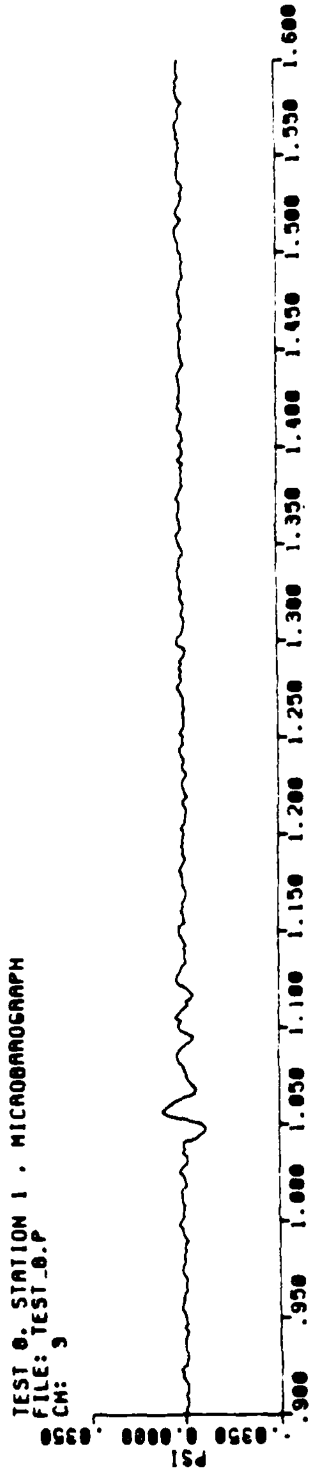

TEST 0. STATION 1. GEOPHONE
FILE: TEST_0.1
CH: 1
L4. RADIAL (IPS)
-.0250 0.0000 .0250
.900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300 1.350 1.400 1.450 1.500 1.550 1.600
TIME . SEC.

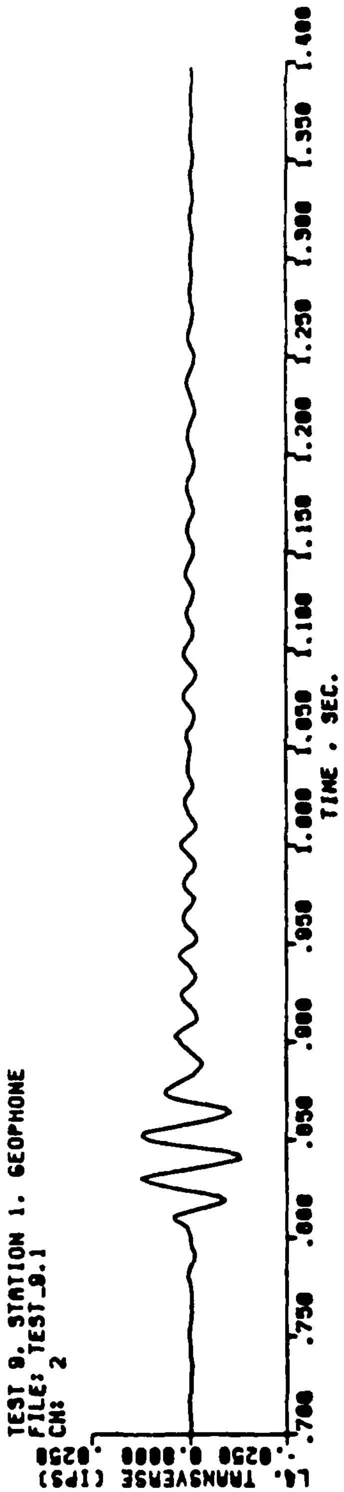

TEST 0. STATION 1. GEOPHONE
FILE: TEST_0.1
CH: 0
L4. VERTICAL (IPS)
-.0250 0.0000 .0250
.900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300 1.350 1.400 1.450 1.500 1.550 1.600
TIME . SEC.

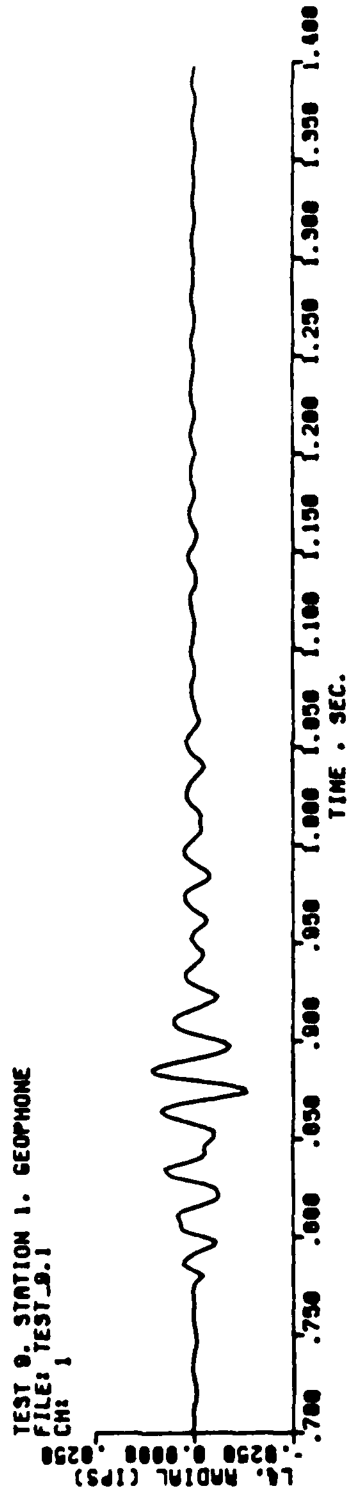


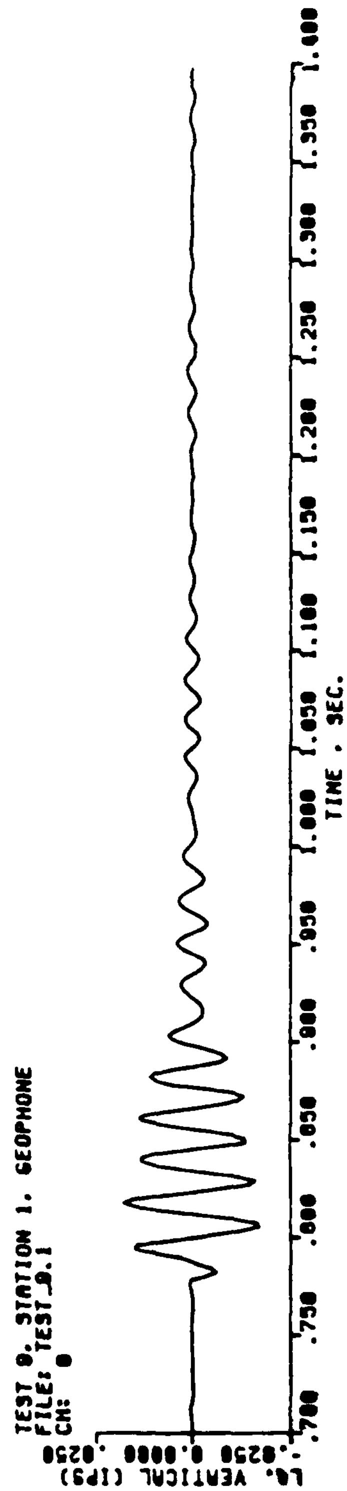
TEST 8. STATION 2. GEOPHONE
FILE: TEST_8.2
CH: 6
L8. TRANSVERSE (IPS)
TEST 8. STATION 2. GEOPHONE
FILE: TEST_8.2
CH: 5
L8. RADIAL (IPS)
TEST 8. STATION 2. GEOPHONE
FILE: TEST_8.2
CH: 4
L8. VERTICAL (IPS)
X10⁻¹
TIME . SEC.

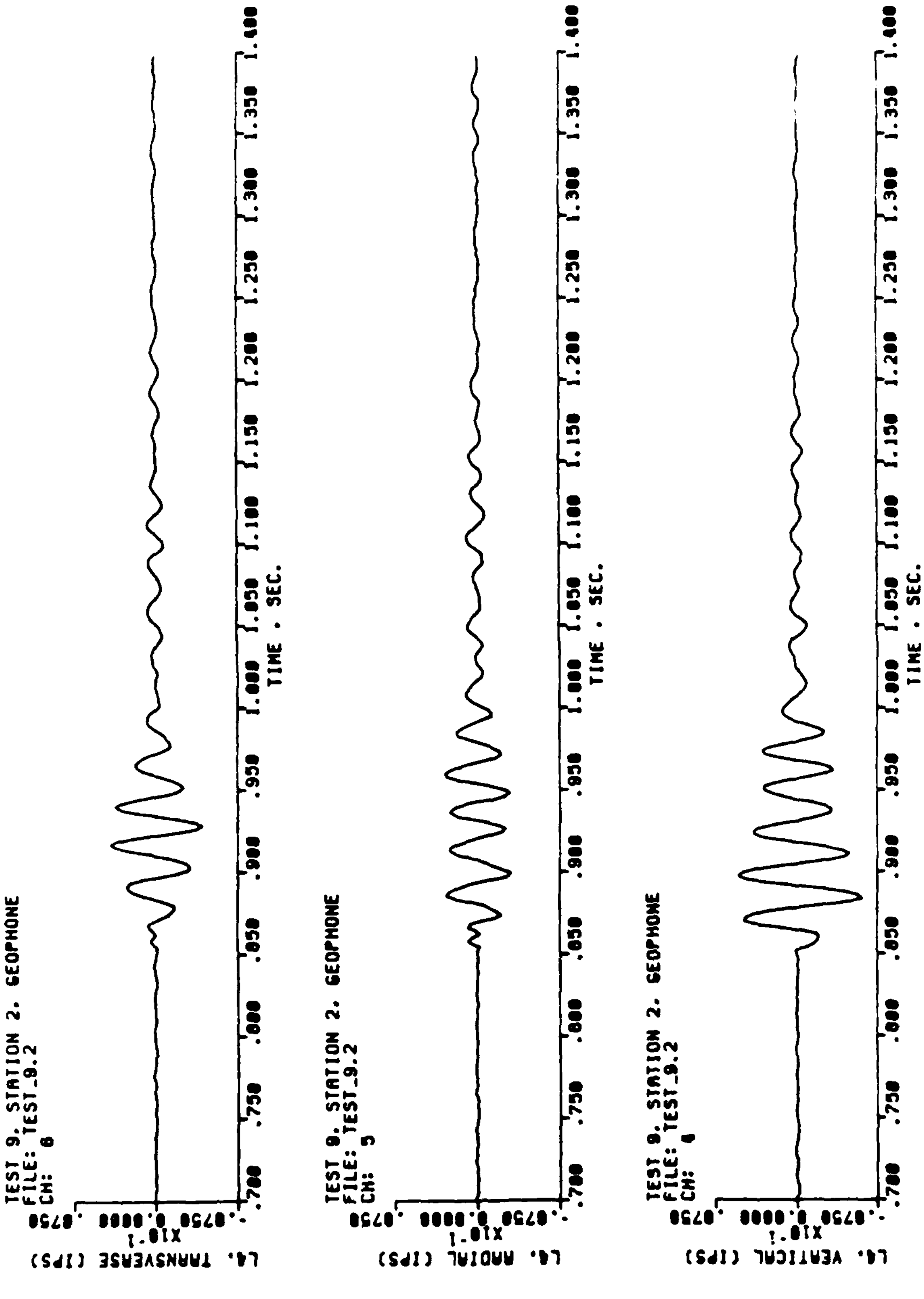

TEST 8. STATION 2. MICROBAROGRAPH
FILE: TEST_8.P
CH: 7
PSI
.0350
0.0000
.0350
.900
.950
1.000
1.050
1.100
1.150
1.200
1.250
1.300
1.350
1.400
1.450
1.500
1.550
1.600
TIME . SEC.

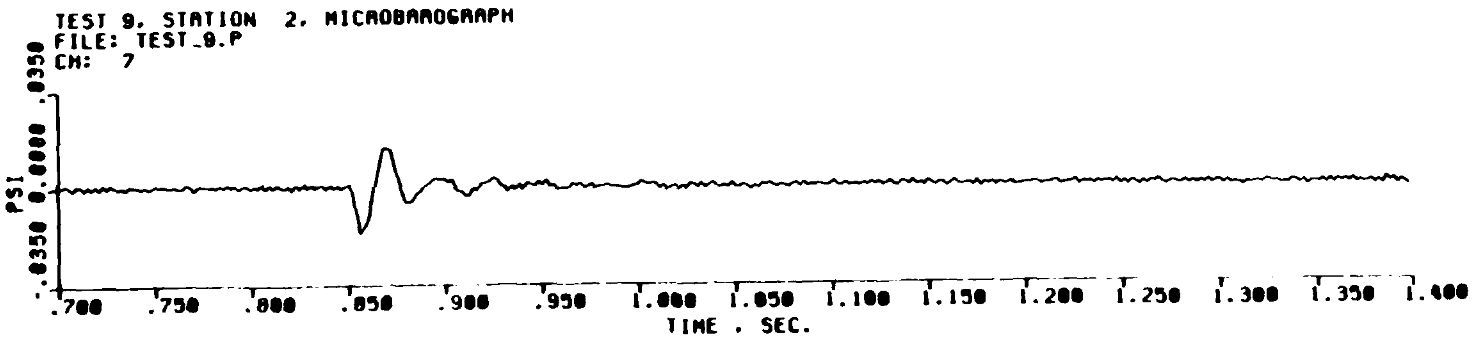

TEST 8. STATION 1 . MICROBAROGRAPH
FILE: TEST_8.P
CH: 9
PSI
.0350
0.0000
.0350
.900
.950
1.000
1.050
1.100
1.150
1.200
1.250
1.300
1.350
1.400
1.450
1.500
1.550
1.600
TIME . SEC.

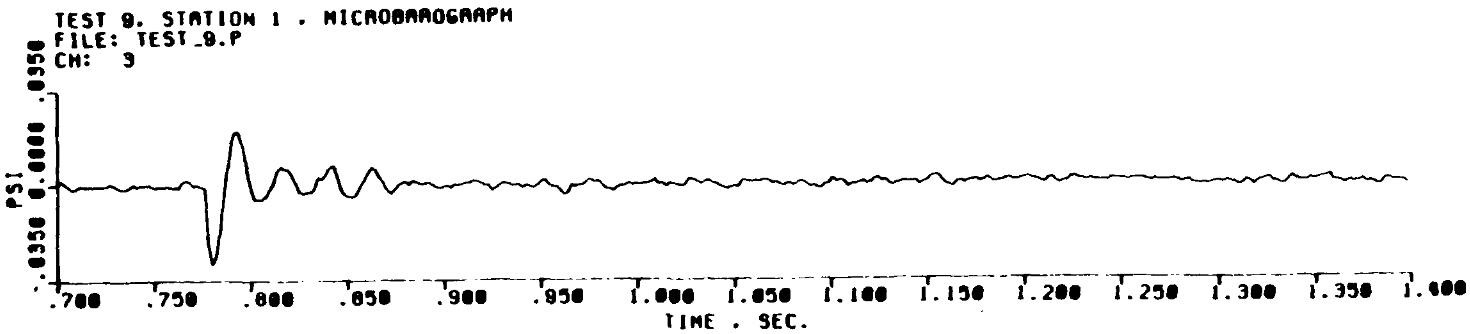

TEST 9, STATION 1. GEOPHONE
FILE: TEST_9.1
CH: 2
L4, TRANSVERSE (IPS)
.0250
0.0000
-.0250
.700 .750 .800 .850 .900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300 1.350 1.400
TIME , SEC.

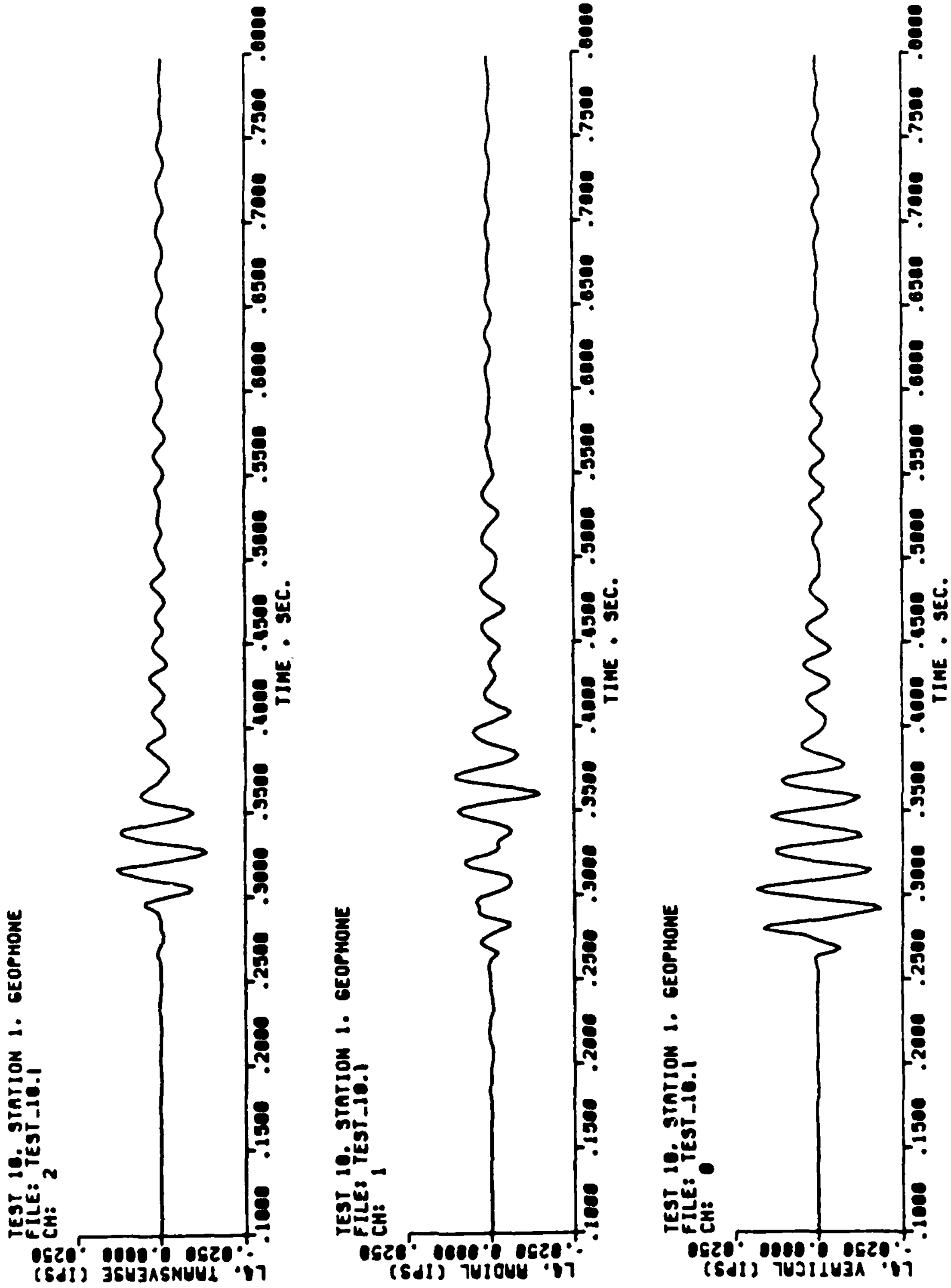

TEST 9, STATION 1. GEOPHONE
FILE: TEST_9.1
CH: 1
L4, RADIAL (IPS)
.0250
0.0000
-.0250
.700 .750 .800 .850 .900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300 1.350 1.400
TIME , SEC.

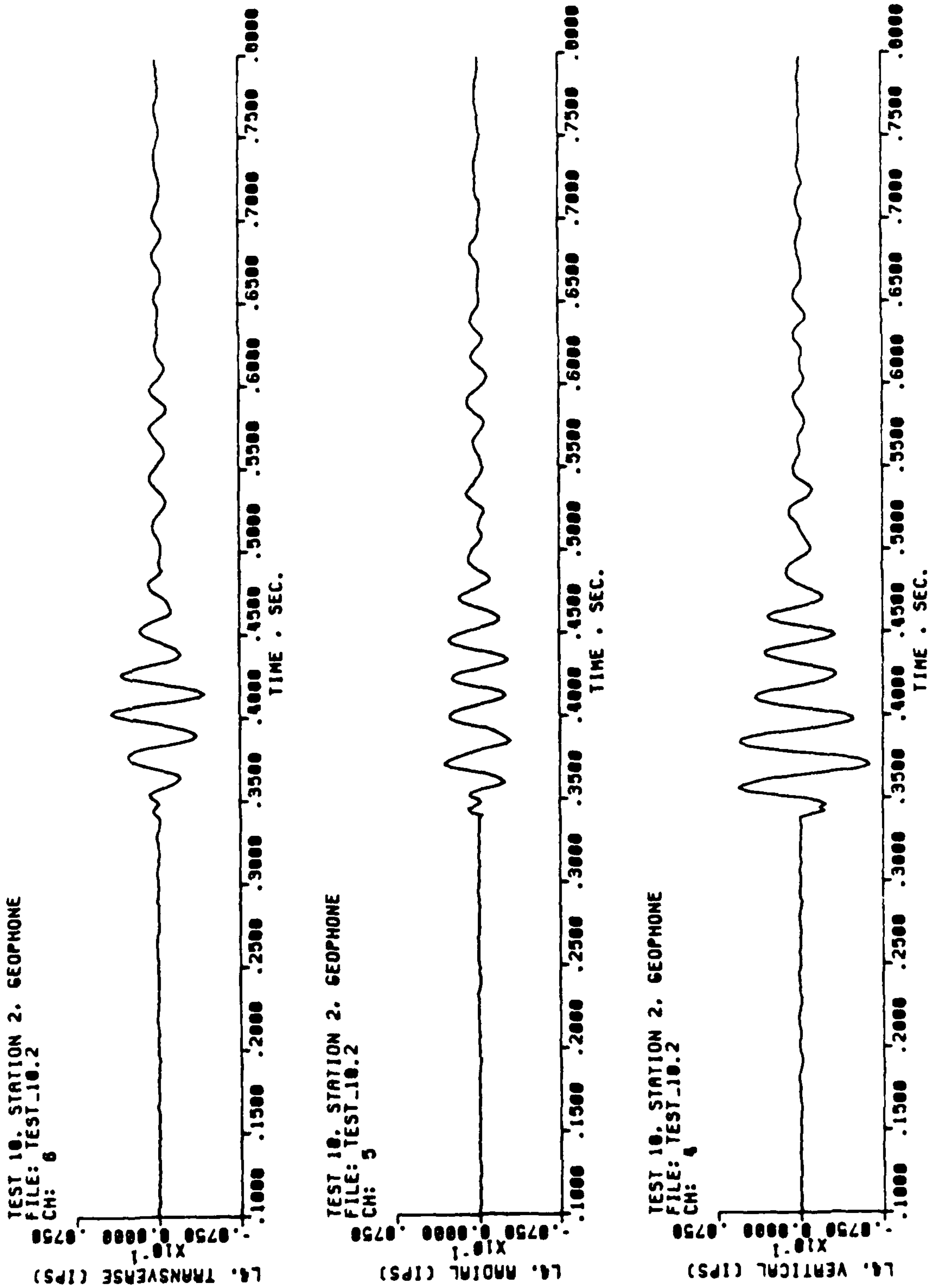

TEST 9, STATION 1. GEOPHONE
FILE: TEST_9.1
CH: 0
L4, VERTICAL (IPS)
.0250
0.0000
-.0250
.700 .750 .800 .850 .900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300 1.350 1.400
TIME , SEC.


TEST 9, STATION 2. GEOPHONE
FILE: TEST_9.2
CH: 6
L4, TRANSVERSE (IPS)
TEST 9, STATION 2. GEOPHONE
FILE: TEST_9.2
CH: 5
L4, RADIAL (IPS)
TEST 9, STATION 2. GEOPHONE
FILE: TEST_9.2
CH: 4
L4, VERTICAL (IPS)
-.0750 0.0000 .0750
X10^-1
.700 .750 .800 .850 .900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300 1.350 1.400
TIME , SEC.

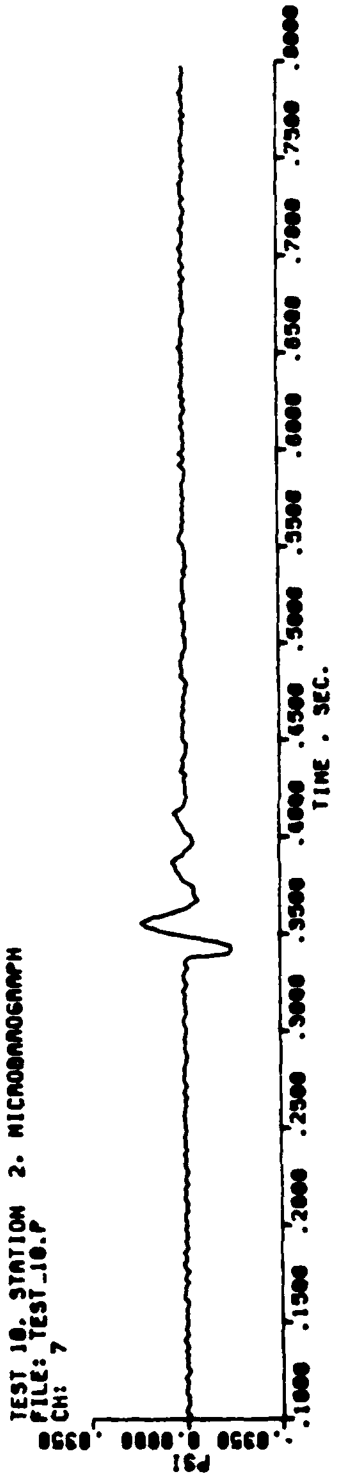

TEST 9. STATION 2. MICROBAROGRAPH
FILE: TEST_9.P
CH: 7
PSI
.0350
0.0000
.0350
.700
.750
.800
.850
.900
.950
1.000
1.050
1.100
1.150
1.200
1.250
1.300
1.350
1.400
TIME . SEC.

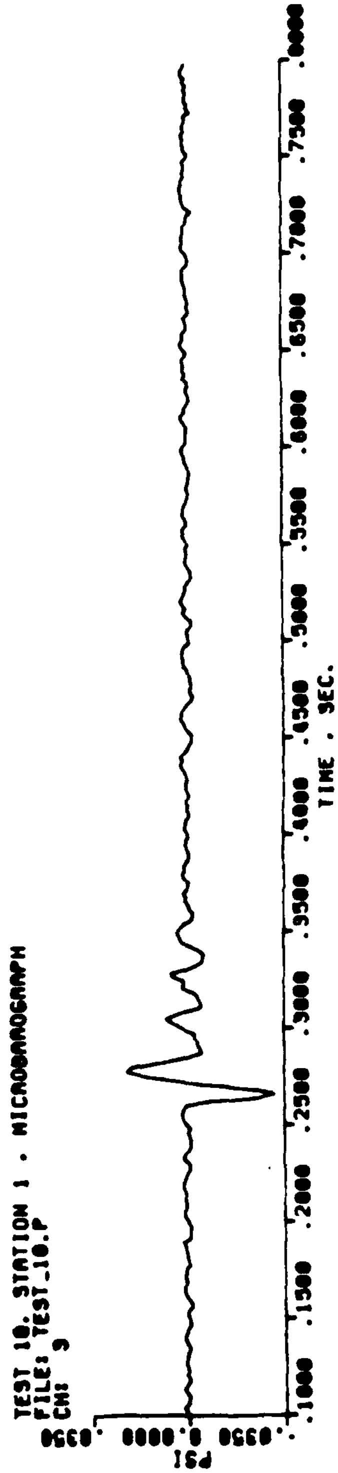

TEST 9. STATION 1 . MICROBAROGRAPH
FILE: TEST_9.P
CH: 3
PSI
.0350
0.0000
.0350
.700
.750
.800
.850
.900
.950
1.000
1.050
1.100
1.150
1.200
1.250
1.300
1.350
1.400
TIME . SEC.

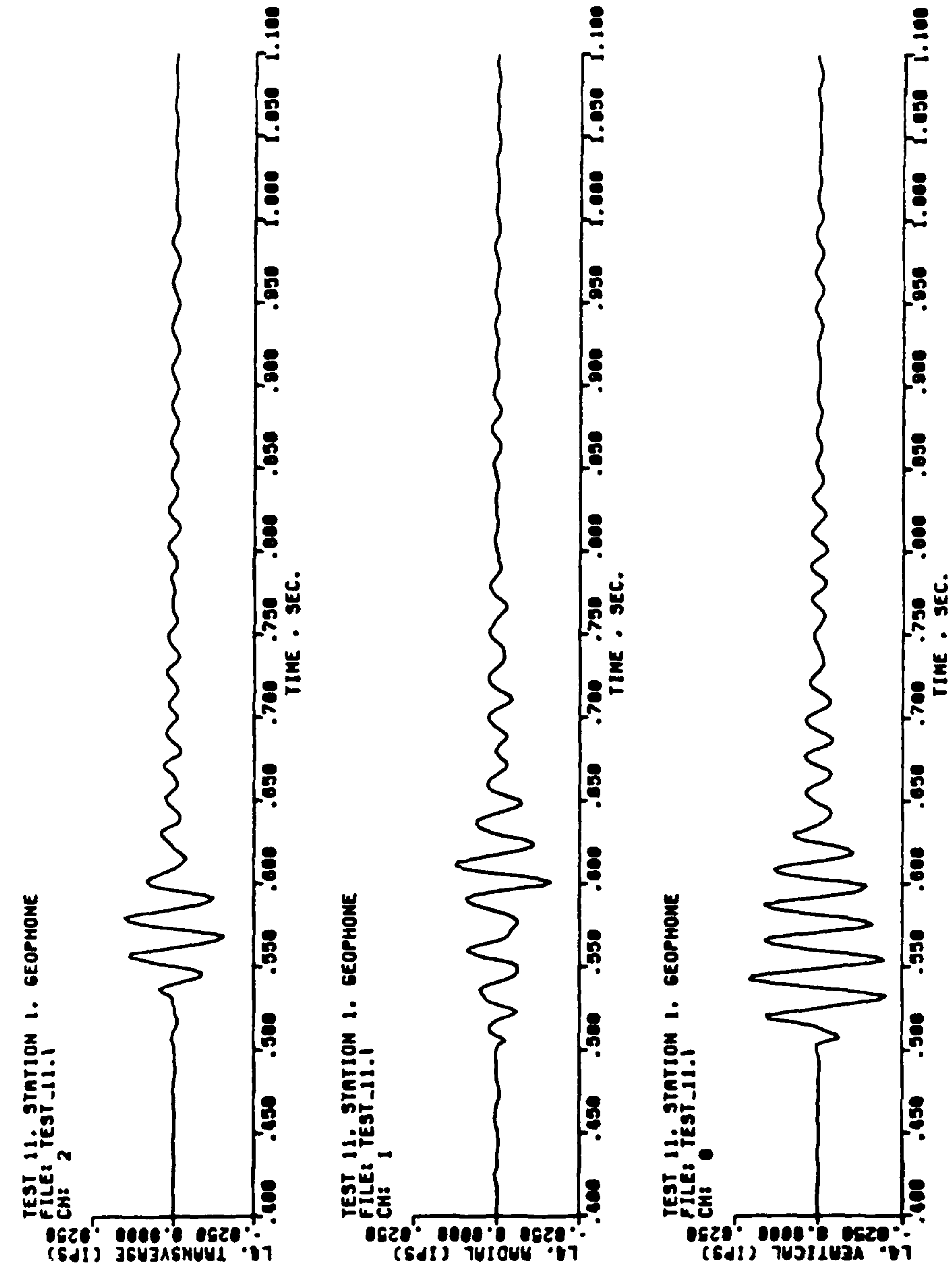

TEST 10. STATION 1. GEOPHONE
FILE: TEST_10.1
CH: 2
L4, TRANSVERSE (IPS)
-.0250 0.0000 .0250
TEST 10. STATION 1. GEOPHONE
FILE: TEST_10.1
CH: 1
L4, RADIAL (IPS)
-.0250 0.0000 .0250
TEST 10. STATION 1. GEOPHONE
FILE: TEST_10.1
CH: 0
L4, VERTICAL (IPS)
-.0250 0.0000 .0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.

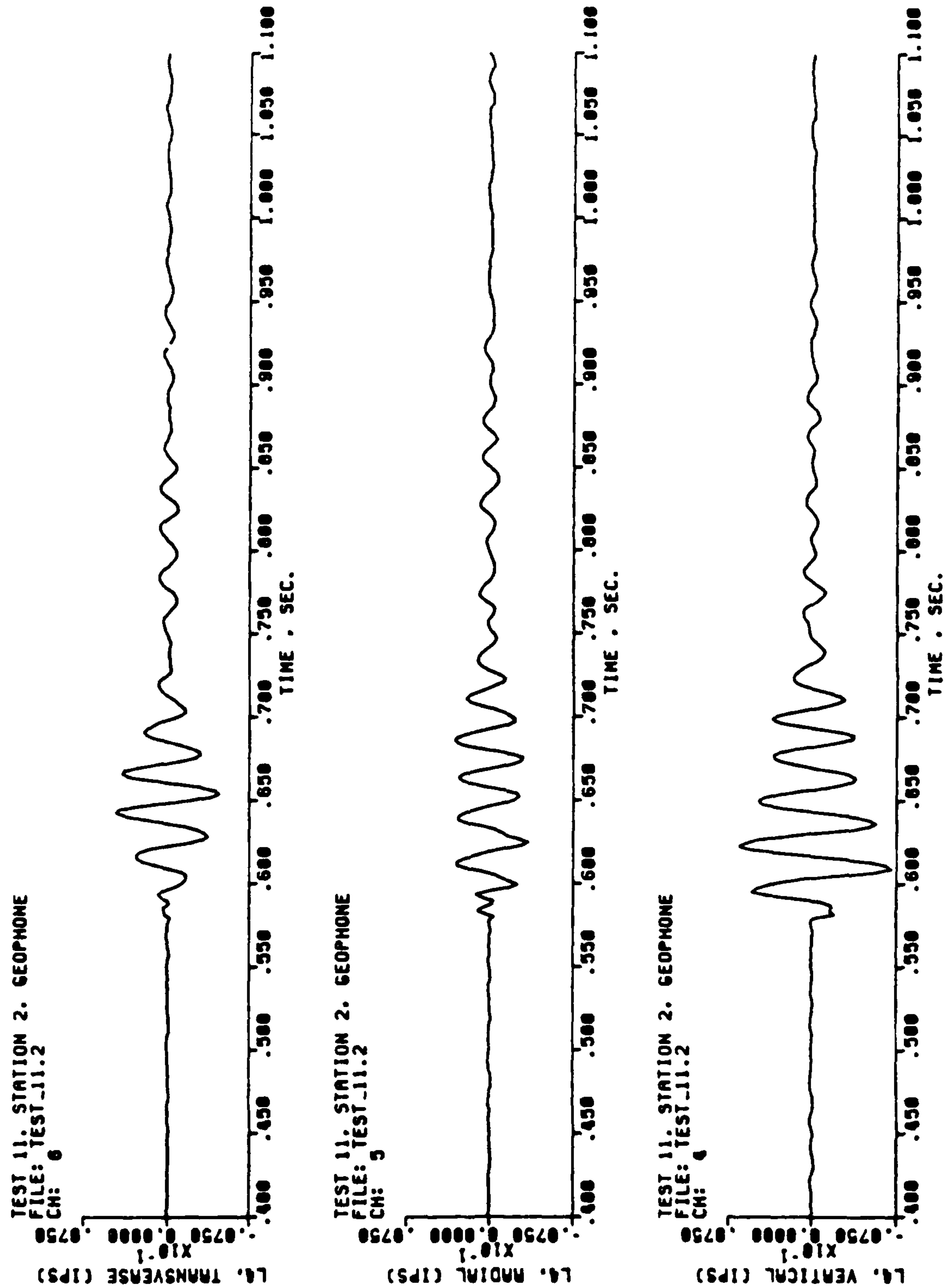


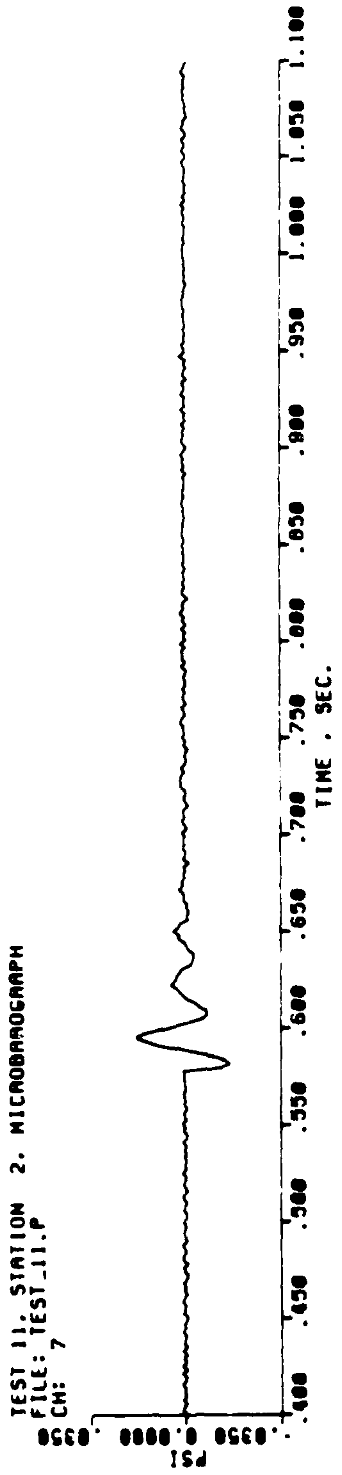
TEST 10. STATION 2. GEOPHONE
FILE: TEST_10.2
CH: 6
L4. TRANSVERSE (IPS)
X10^-1
.0750 0.0000 -.0750
TEST 10. STATION 2. GEOPHONE
FILE: TEST_10.2
CH: 5
L4. RADIAL (IPS)
X10^-1
.0750 0.0000 -.0750
TEST 10. STATION 2. GEOPHONE
FILE: TEST_10.2
CH: 4
L4. VERTICAL (IPS)
X10^-1
.0750 0.0000 -.0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

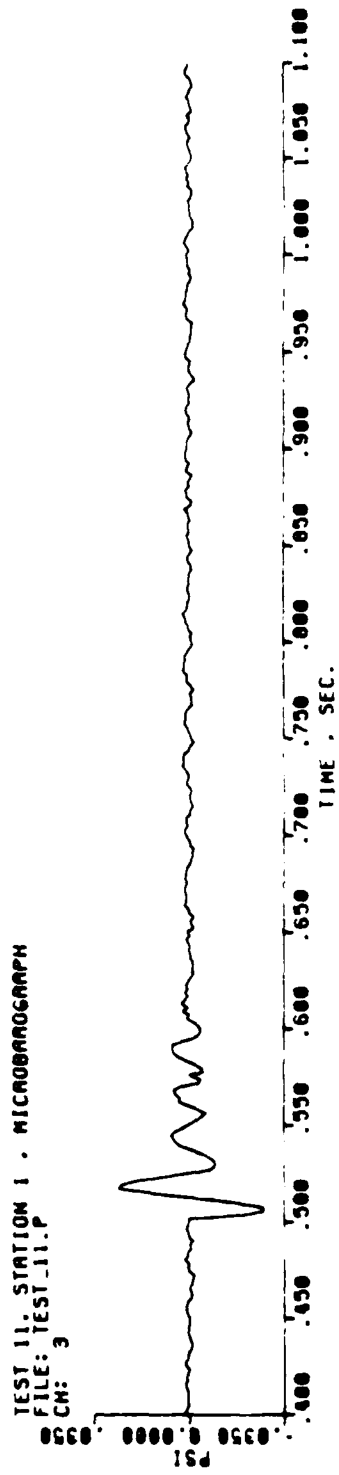

TEST 10. STATION 2. MICROBAROGRAPH
FILE: TEST_10.P
CH: 7
PSI
.0350 0.0000 .0350
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.

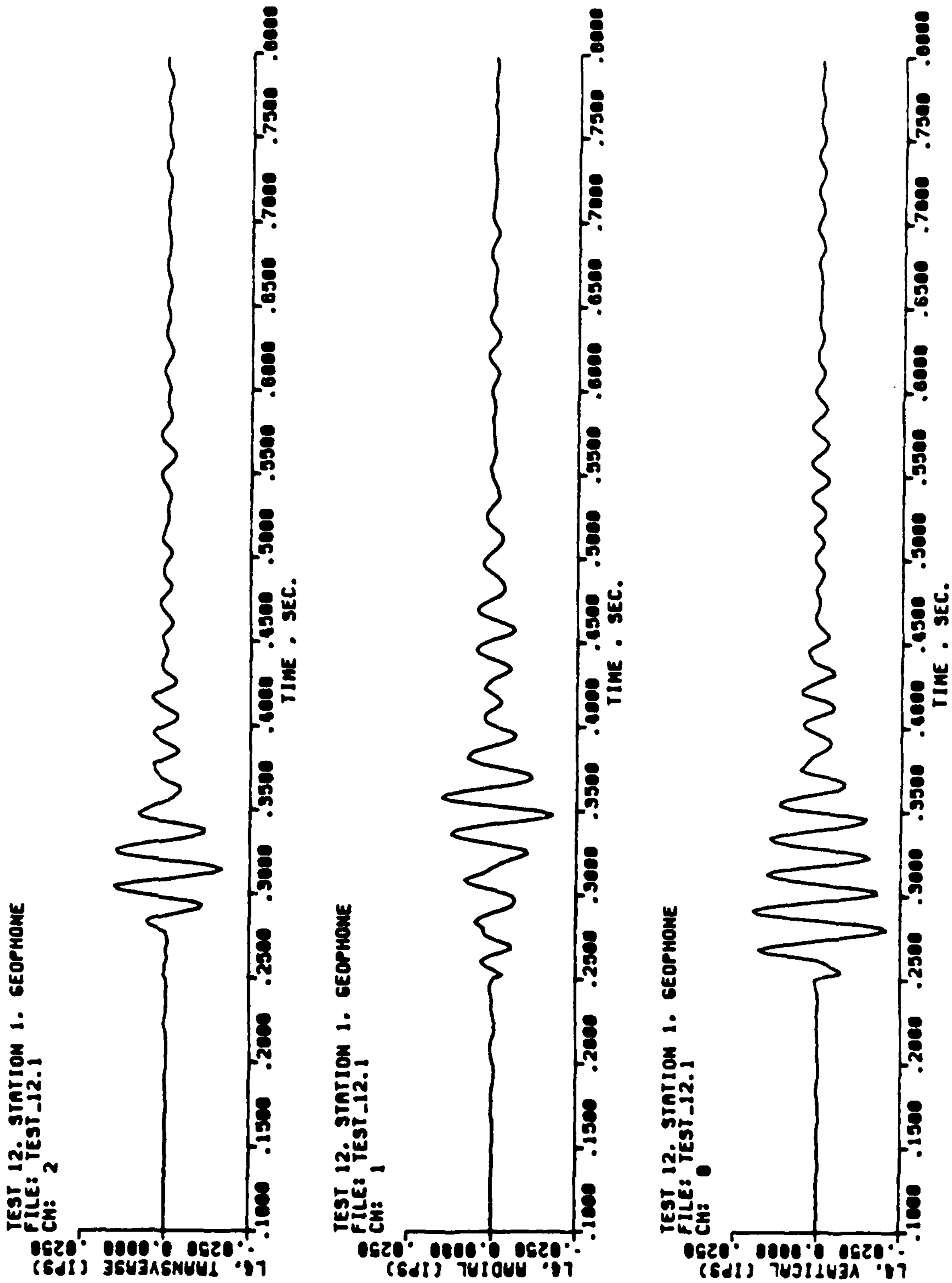

TEST 10. STATION 1 . MICROBAROGRAPH
FILE: TEST_10.P
CH: 3
PSI
.0350 0.0000 .0350
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 11. STATION 1. GEOPHONE
FILE: TEST_11.1
CH: 2
L4. TRANSVERSE (IPS)
.0250 0.0000 -.0250
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.
TEST 11. STATION 1. GEOPHONE
FILE: TEST_11.1
CH: 1
L4. RADIAL (IPS)
.0250 0.0000 -.0250
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.
TEST 11. STATION 1. GEOPHONE
FILE: TEST_11.1
CH: 0
L4. VERTICAL (IPS)
.0250 0.0000 -.0250
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME . SEC.

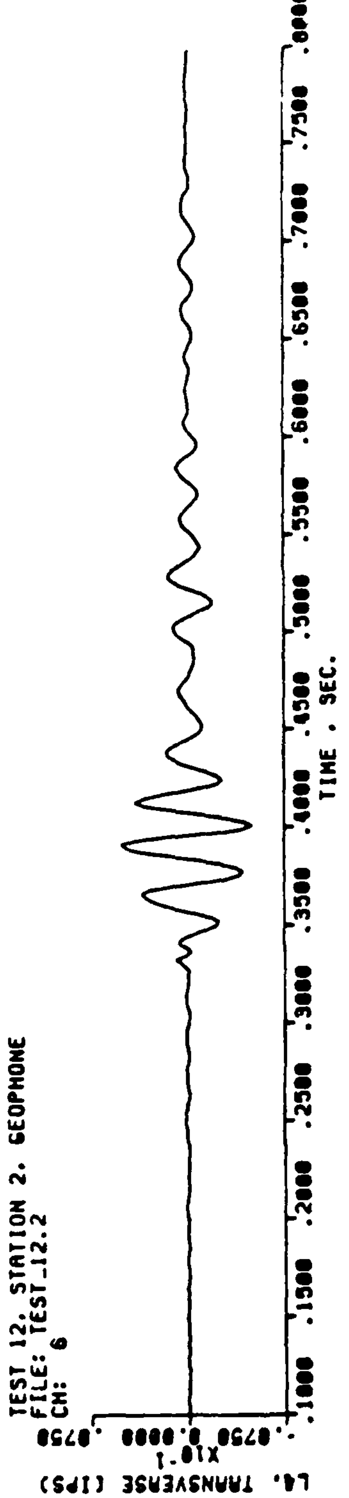

TEST 11. STATION 2. GEOPHONE
FILE: TEST_11.2
CH: 6
L4, TRANSVERSE (IPS)
X10^-1
.0750 0.0000 -.0750
TEST 11. STATION 2. GEOPHONE
FILE: TEST_11.2
CH: 5
L4, RADIAL (IPS)
X10^-1
.0750 0.0000 -.0750
TEST 11. STATION 2. GEOPHONE
FILE: TEST_11.2
CH: 4
L4, VERTICAL (IPS)
X10^-1
.0750 0.0000 -.0750
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME , SEC.

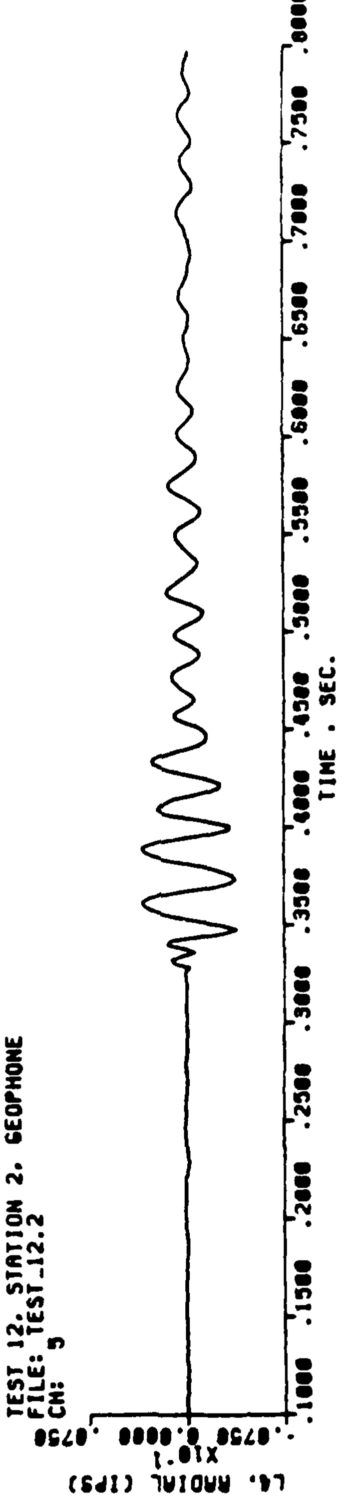

TEST 11. STATION 2. MICROBAROGRAPH
FILE: TEST_11.P
CH: 7
PSI
.0350
0.0000
-.0350
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME , SEC.

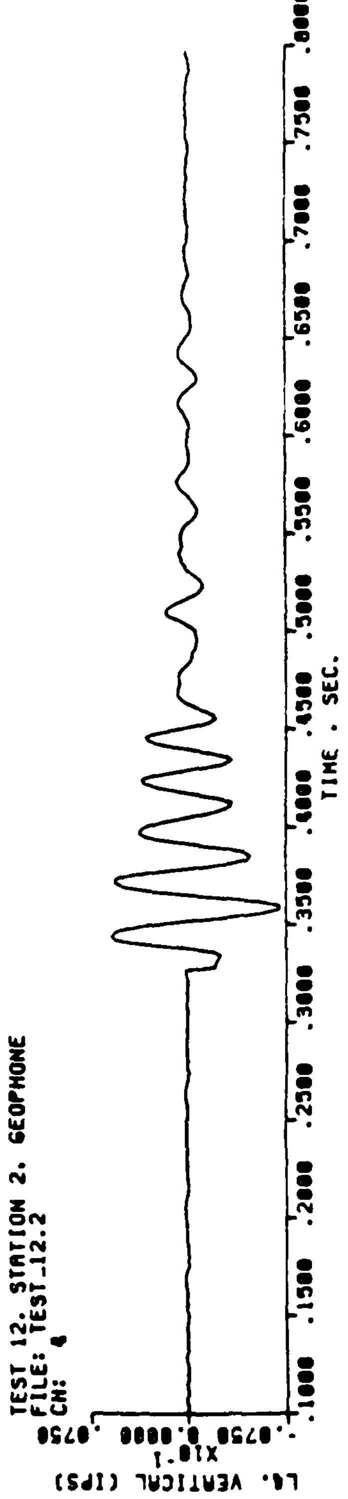

TEST 11. STATION 1 . MICROBAROGRAPH
FILE: TEST_11.P
CH: 3
PSI
.0350
0.0000
-.0350
.400 .450 .500 .550 .600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100
TIME , SEC.

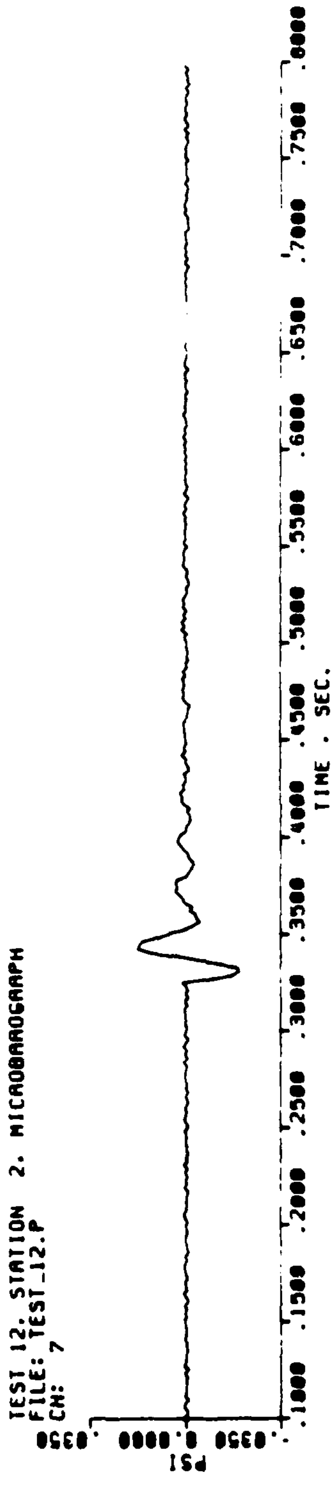


TEST 12. STATION 1. GEOPHONE
FILE: TEST_12.1
CH: 2
LG. TRANSVERSE (IPS)
.0250 0.0000 -.0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.
TEST 12. STATION 1. GEOPHONE
FILE: TEST_12.1
CH: 1
LG. RADIAL (IPS)
.0250 0.0000 -.0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.
TEST 12. STATION 1. GEOPHONE
FILE: TEST_12.1
CH: 0
LG. VERTICAL (IPS)
.0250 0.0000 -.0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 12. STATION 2. GEOPHONE
FILE: TEST_12.2
CH: 6
L4. TRANSVERSE (IPS)
X10^-1
-.0750 0.0000 .0750
TIME . SEC.
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000


TEST 12. STATION 2. GEOPHONE
FILE: TEST_12.2
CH: 5
L4. RADIAL (IPS)
X10^-1
-.0750 0.0000 .0750
TIME . SEC.
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000


TEST 12. STATION 2. GEOPHONE
FILE: TEST_12.2
CH: 4
L4. VERTICAL (IPS)
X10^-1
-.0750 0.0000 .0750
TIME . SEC.
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000


TEST 12. STATION 2. MICROBAROGRAPH
FILE: TEST_12.P
CH: 7
PSI
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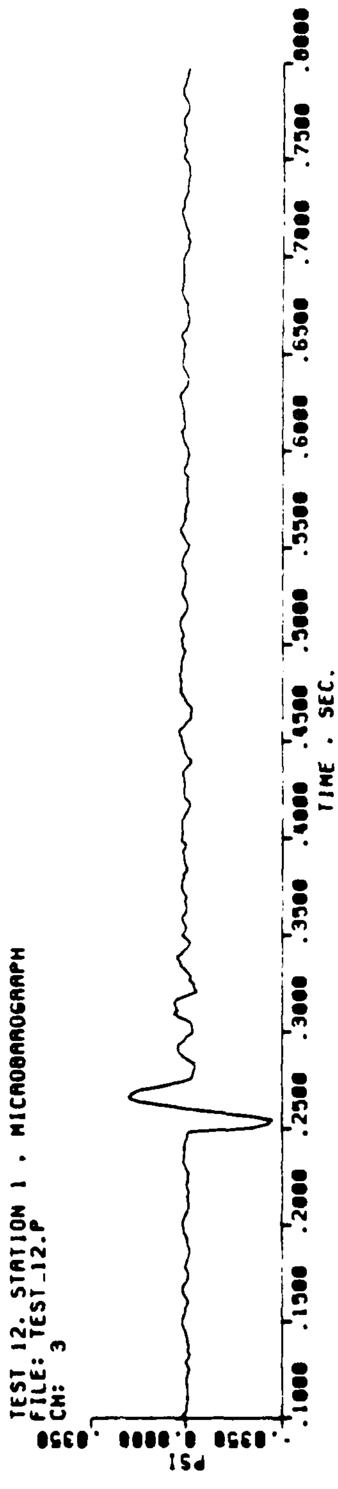
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.


TEST 12. STATION 1 . MICROBAROGRAPH
FILE: TEST_12.P
CH: 3
PSI
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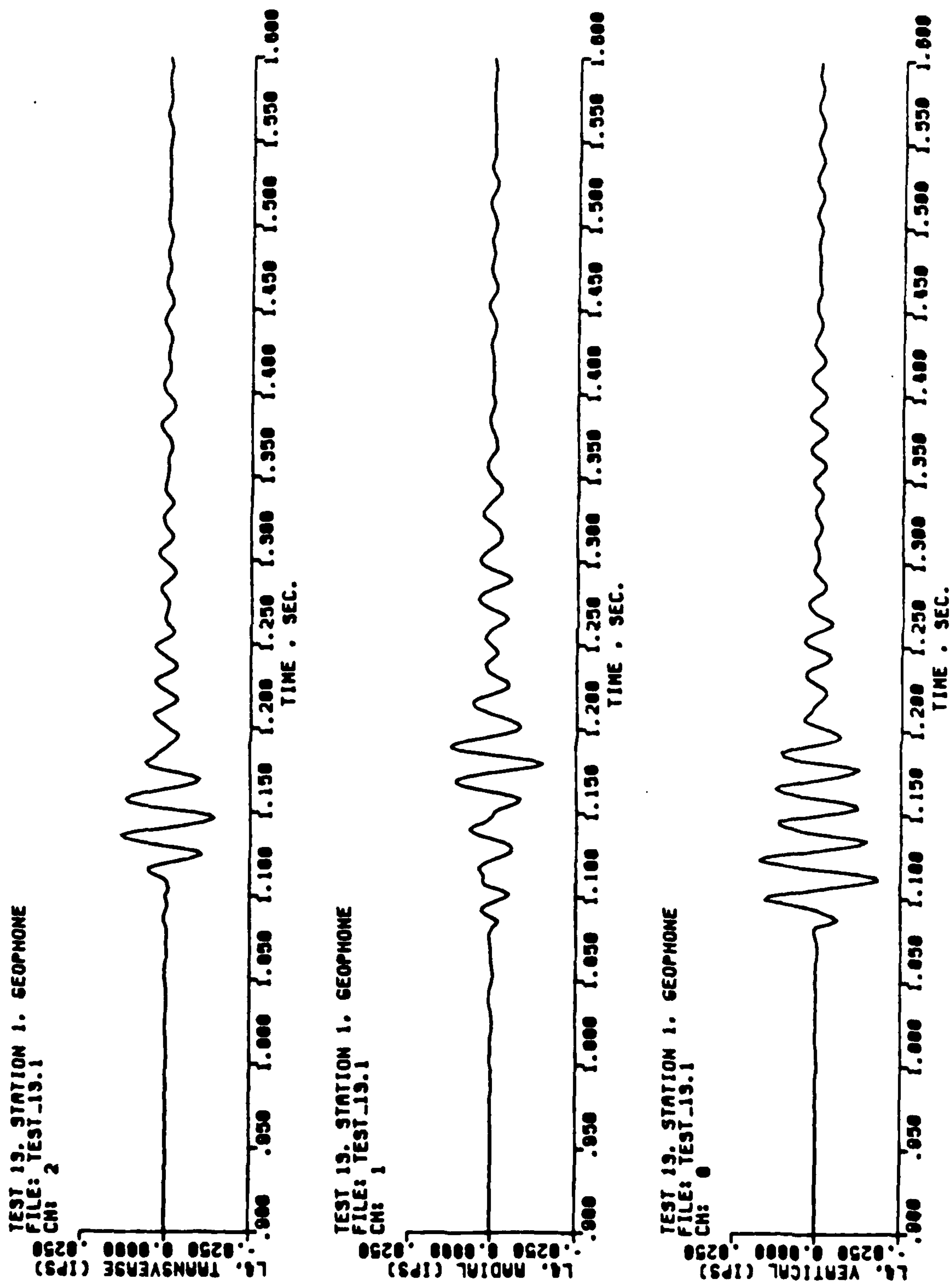
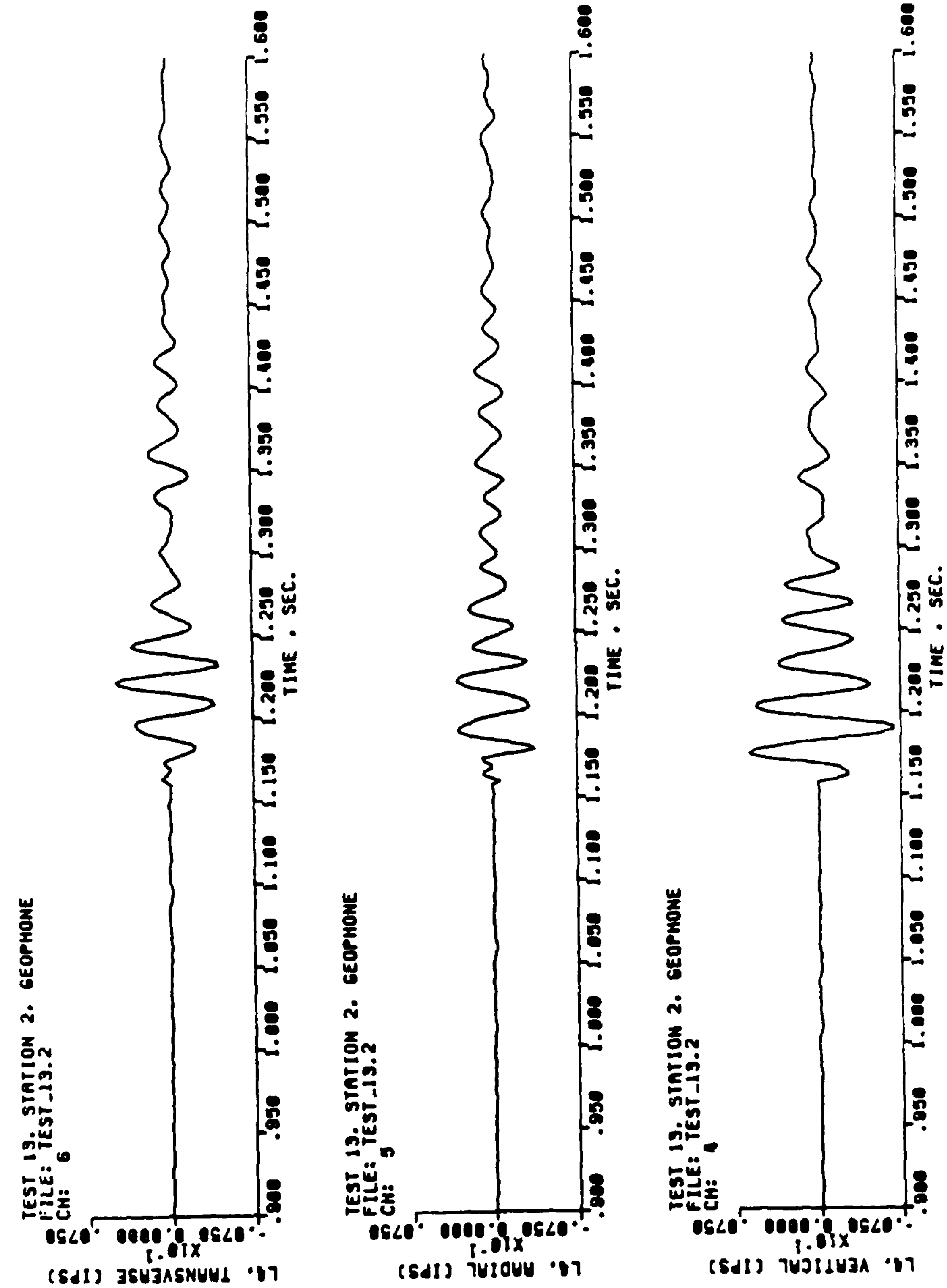
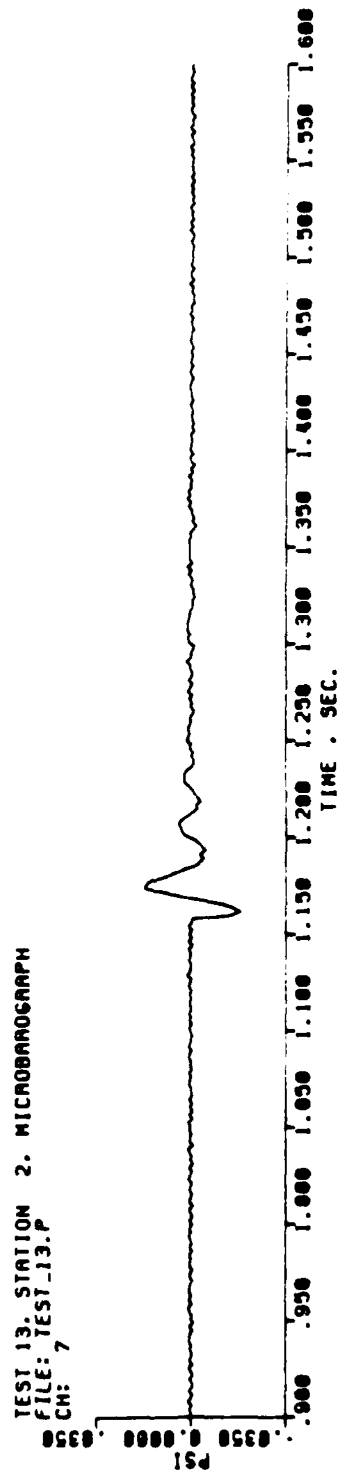
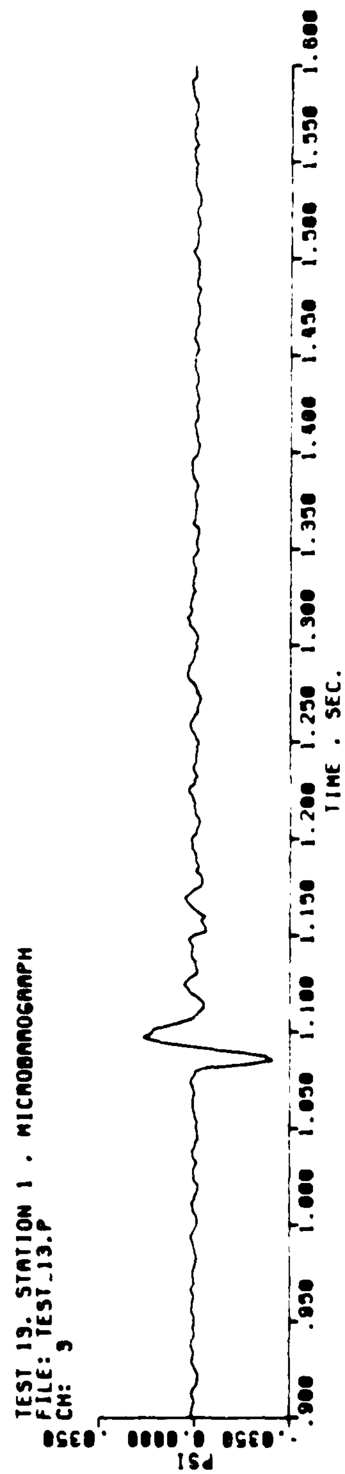
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.


TEST 19. STATION 1. GEOPHONE
FILE: TEST_19.1
CH: 2
L4, TRANSVERSE (IPS)
.0250
0.0000
-.0250
TIME . SEC.
TEST 19. STATION 1. GEOPHONE
FILE: TEST_19.1
CH: 1
L4, RADIAL (IPS)
TEST 19. STATION 1. GEOPHONE
FILE: TEST_19.1
CH: 0
L4, VERTICAL (IPS)
.900
.950
1.000
1.050
1.100
1.150
1.200
1.250
1.300
1.350
1.400
1.450
1.500
1.550
1.600

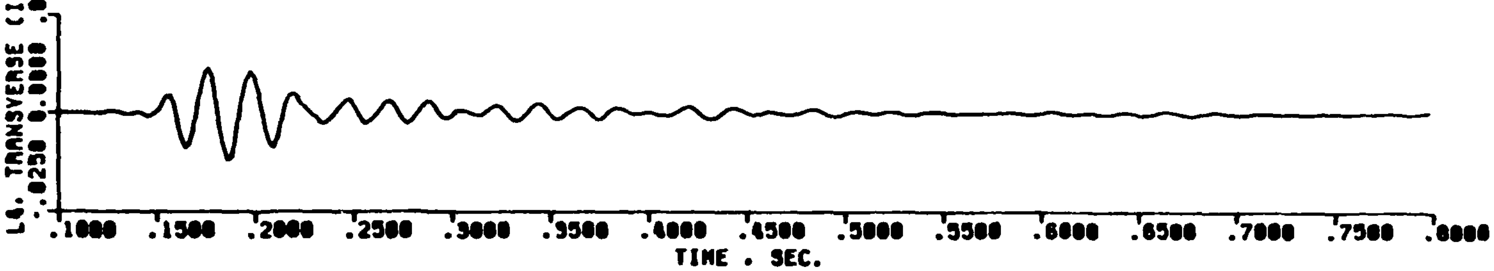


TEST 13. STATION 2. GEOPHONE
FILE: TEST_13.2
CH: 6
L4, TRANSVERSE (IPS)
X10^-1
.0750 0.0000 .0750
TEST 13. STATION 2. GEOPHONE
FILE: TEST_13.2
CH: 5
L4, RADIAL (IPS)
X10^-1
.0750 0.0000 .0750
TEST 13. STATION 2. GEOPHONE
FILE: TEST_13.2
CH: 4
L4, VERTICAL (IPS)
X10^-1
.0750 0.0000 .0750
.900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300 1.350 1.400 1.450 1.500 1.550 1.600
TIME , SEC.

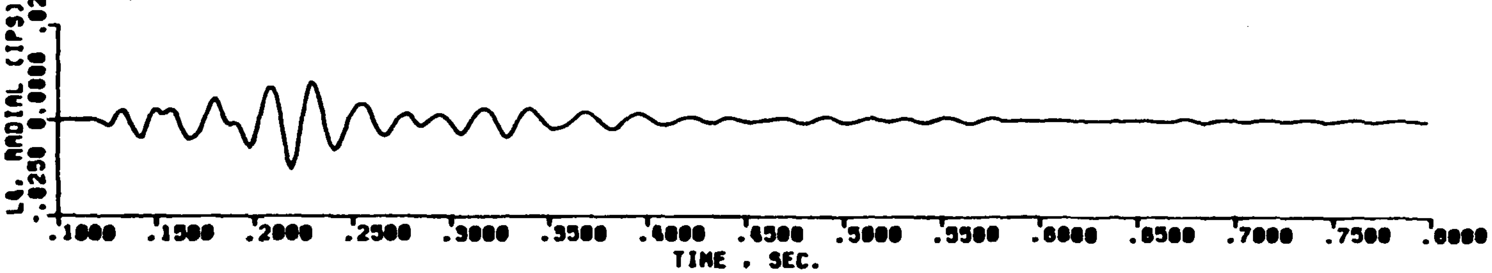

TEST 13. STATION 2. MICROBAROGRAPH
FILE: TEST_13.P
CH: 7
PSI
.0350
0.0000
-.0350
.900
.950
1.000
1.050
1.100
1.150
1.200
1.250
1.300
1.350
1.400
1.450
1.500
1.550
1.600
TIME , SEC.


TEST 13. STATION 1 . MICROBAROGRAPH
FILE: TEST_13.P
CH: 3
PSI
.0350
0.0000
-.0350
.900
.950
1.000
1.050
1.100
1.150
1.200
1.250
1.300
1.350
1.400
1.450
1.500
1.550
1.600
TIME , SEC.

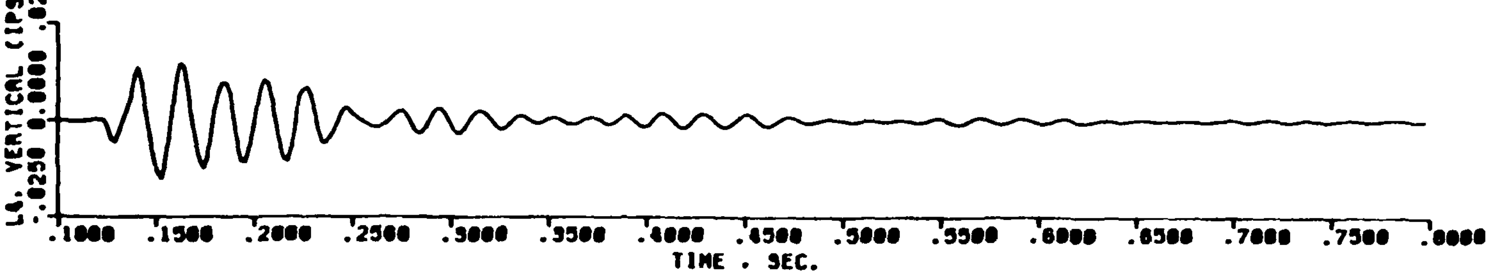
TEST 14. STATION 1. GEOPHONE
FILE: TEST_14.1
CH: 2

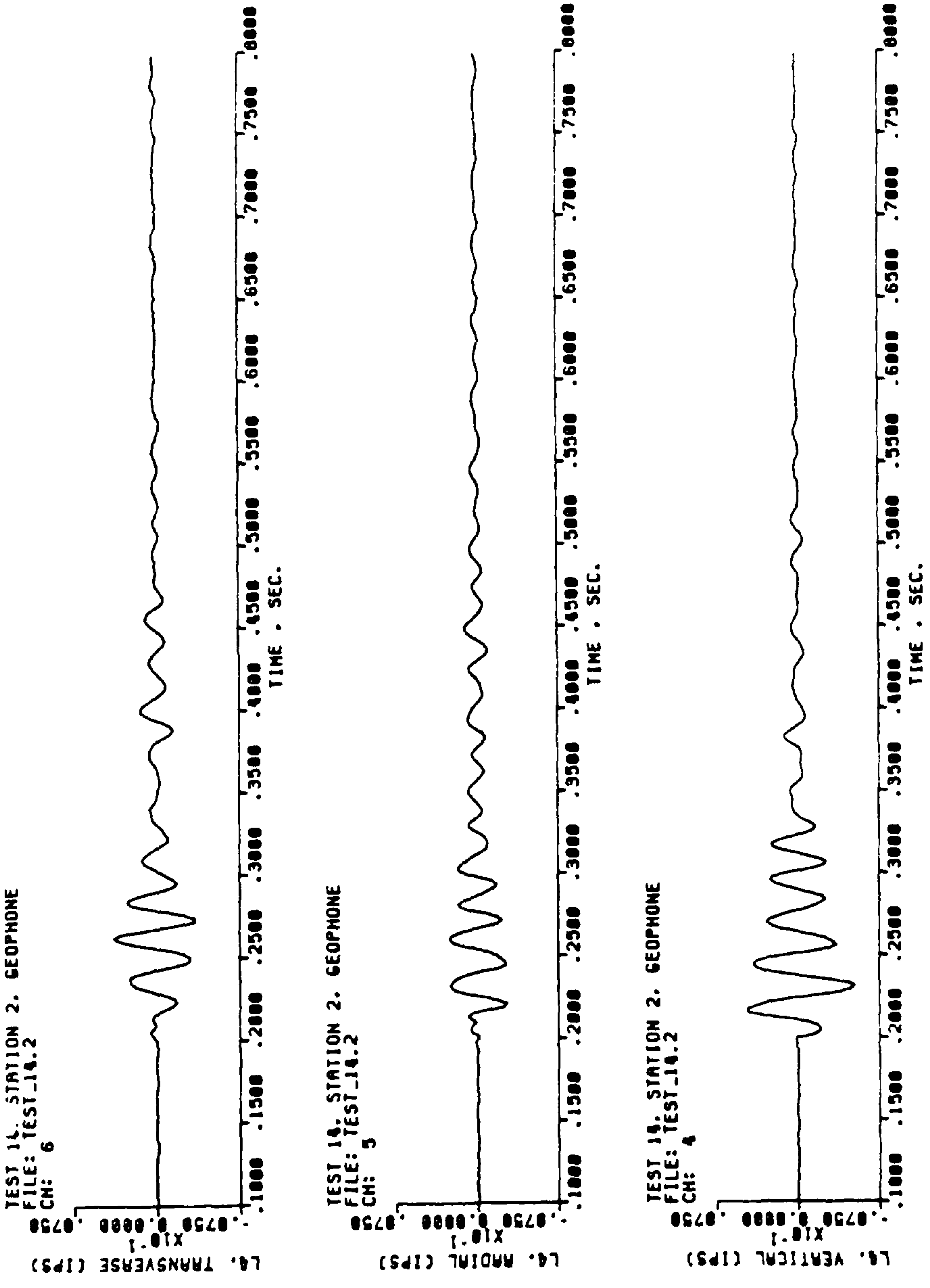


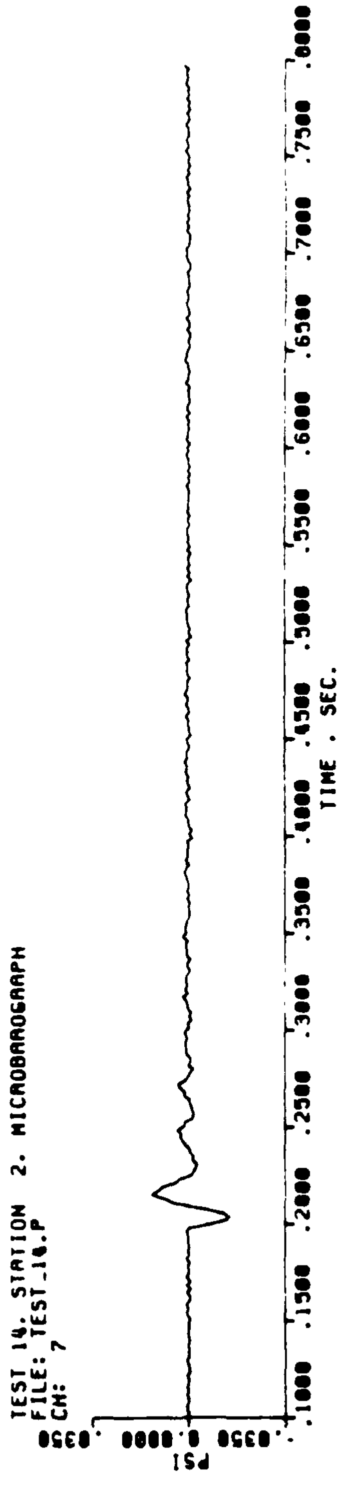
TEST 14. STATION 1. GEOPHONE
FILE: TEST_14.1
CH: 1

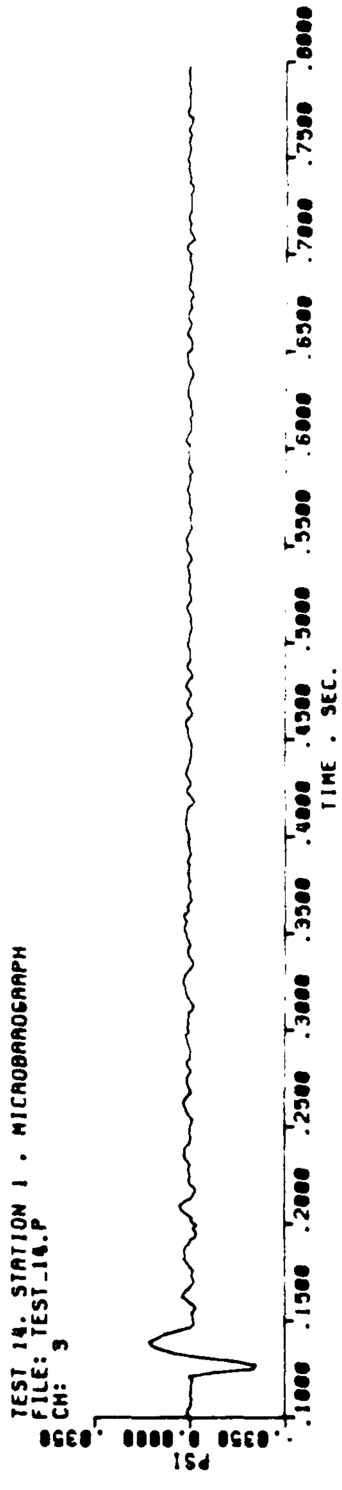


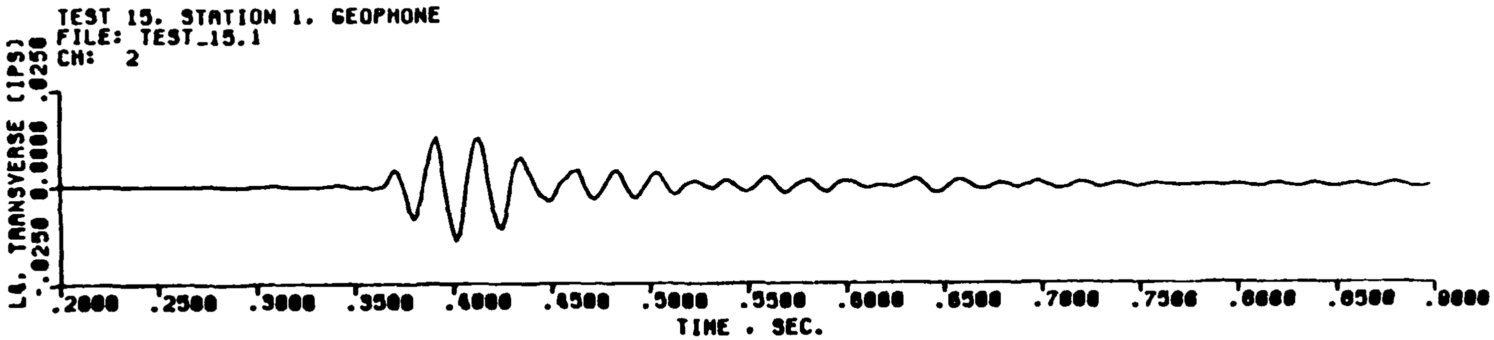
TEST 14. STATION 1. GEOPHONE
FILE: TEST_14.1
CH: 0

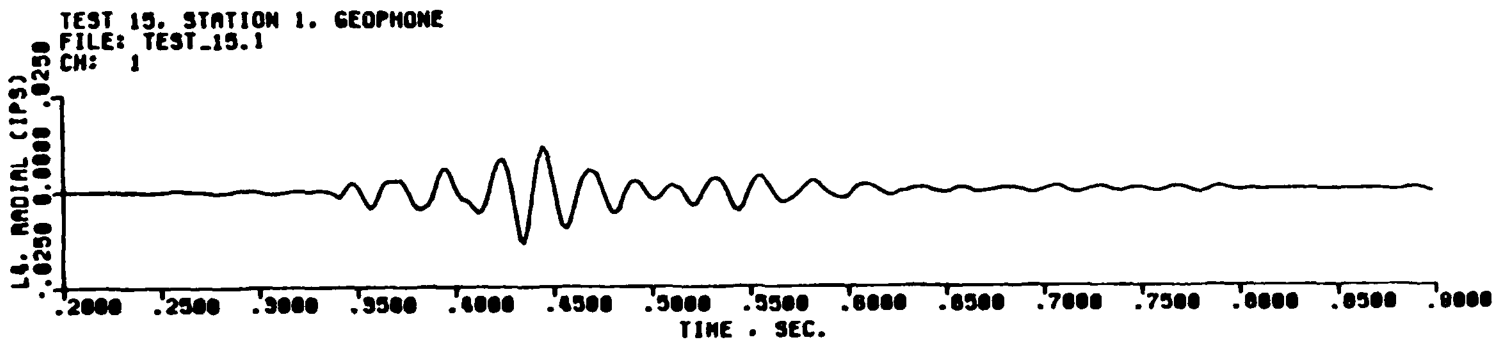


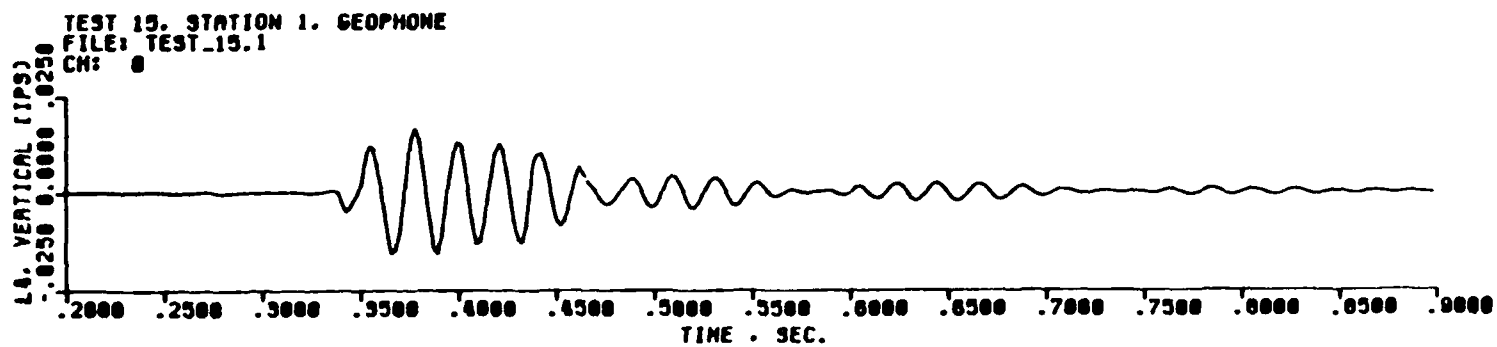

TEST 14. STATION 2. GEOPHONE
FILE: TEST_14.2
CH: 6
LG. TRANSVERSE (IPS)
X10-1
-.0750 0.0000 .0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.
TEST 14. STATION 2. GEOPHONE
FILE: TEST_14.2
CH: 5
LG. RADIAL (IPS)
X10-1
-.0750 0.0000 .0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.
TEST 14. STATION 2. GEOPHONE
FILE: TEST_14.2
CH: 4
LG. VERTICAL (IPS)
X10-1
-.0750 0.0000 .0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.

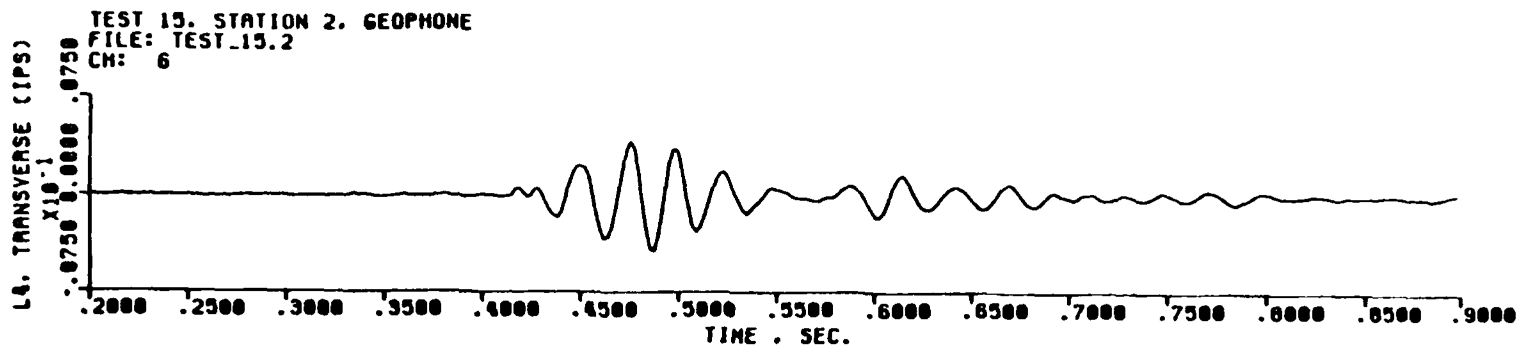

TEST 14. STATION 2. MICROBAROGRAPH
FILE: TEST_14.P
CH: 7
PSI
.0350
0.0000
-.0350
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.

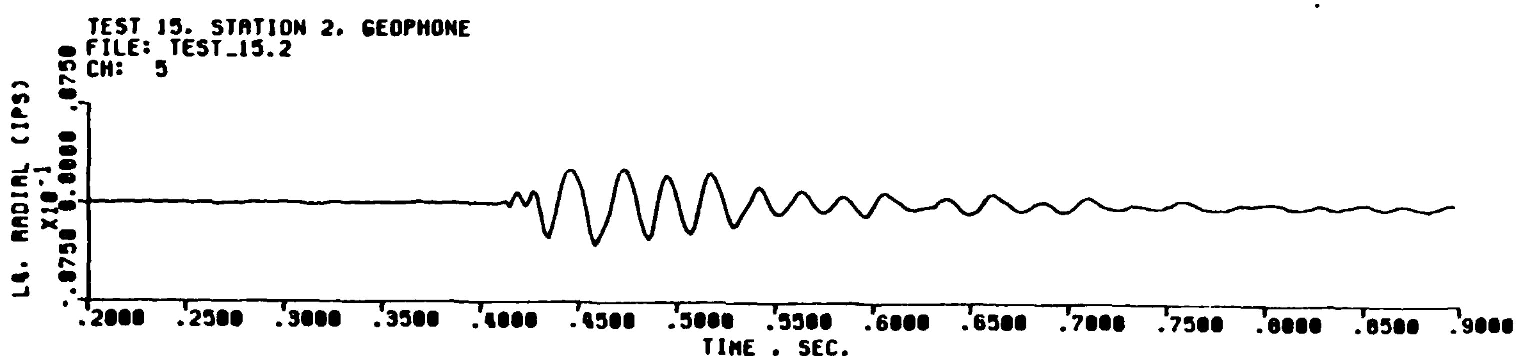

TEST 14. STATION 1 . MICROBAROGRAPH
FILE: TEST_14.P
CH: 9
PSI
.0350
0.0000
-.0350
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.

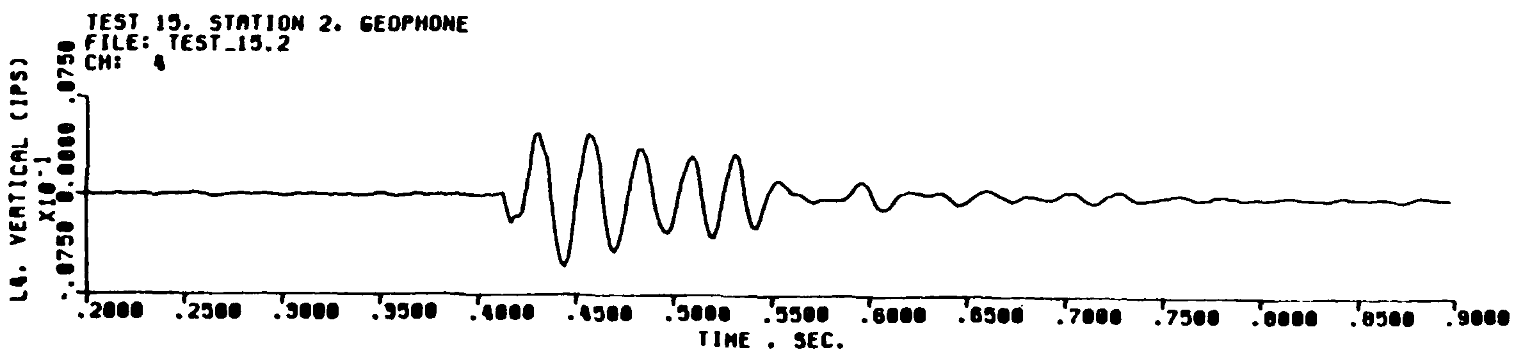

TEST 15. STATION 1. GEOPHONE
FILE: TEST_15.1
CH: 2
L4. TRANSVERSE (IPS)
-.0250 0.0000 .0250
.2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000 .8500 .9000
TIME . SEC.

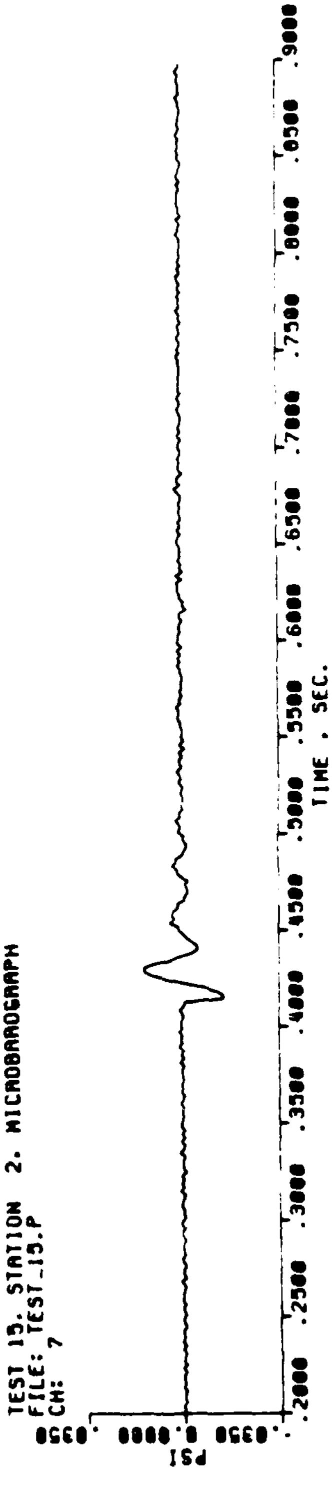

TEST 15. STATION 1. GEOPHONE
FILE: TEST_15.1
CH: 1
L4. RADIAL (IPS)
-.0250 0.0000 .0250
.2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000 .8500 .9000
TIME . SEC.


TEST 15. STATION 1. GEOPHONE
FILE: TEST_15.1
CH: 0
L4. VERTICAL (IPS)
-.0250 0.0000 .0250
.2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000 .8500 .9000
TIME . SEC.


TEST 15. STATION 2. GEOPHONE
FILE: TEST_15.2
CH: 6
L4. TRANSVERSE (IPS)
X10^-1
-.0750
0.0000
.0750
.2000
.2500
.3000
.3500
.4000
.4500
.5000
.5500
.6000
.6500
.7000
.7500
.8000
.8500
.9000
TIME . SEC.


TEST 15. STATION 2. GEOPHONE
FILE: TEST_15.2
CH: 5
L4. RADIAL (IPS)
X10^-1
-.0750
0.0000
.0750
.2000
.2500
.3000
.3500
.4000
.4500
.5000
.5500
.6000
.6500
.7000
.7500
.8000
.8500
.9000
TIME . SEC.


TEST 15. STATION 2. GEOPHONE
FILE: TEST_15.2
CH: 4
L4. VERTICAL (IPS)
X10^-1
-.0750
0.0000
.0750
.2000
.2500
.3000
.3500
.4000
.4500
.5000
.5500
.6000
.6500
.7000
.7500
.8000
.8500
.9000
TIME . SEC.


TEST 15. STATION 2. MICROBAROGRAPH
FILE: TEST_15.P
CH: 7
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0.0000
.0350
.2000
.2500
.3000
.3500
.4000
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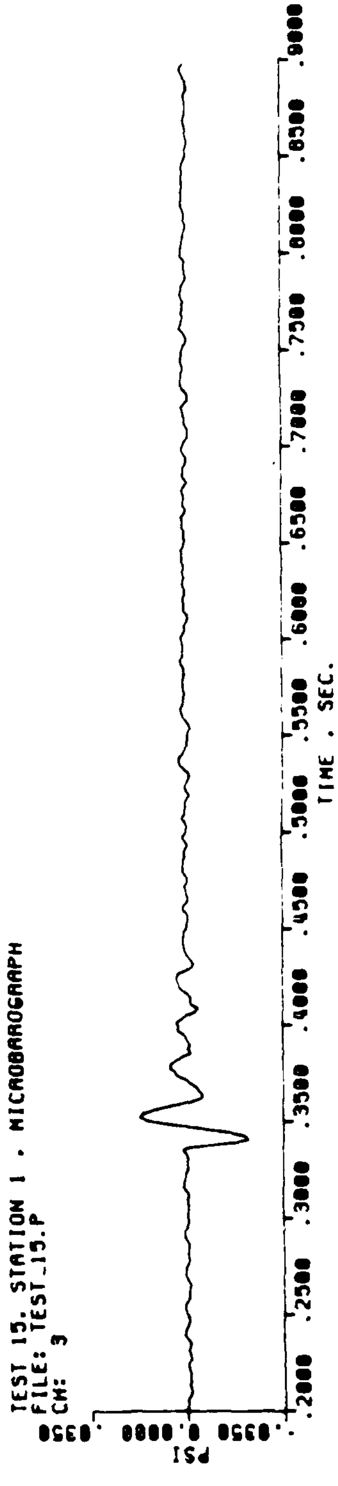
.5000
.5500
.6000
.6500
.7000
.7500
.8000
.8500
.9000
TIME , SEC.


TEST 15. STATION 1 . MICROBAROGRAPH
FILE: TEST_15.P
CH: 3
PSI
.0350
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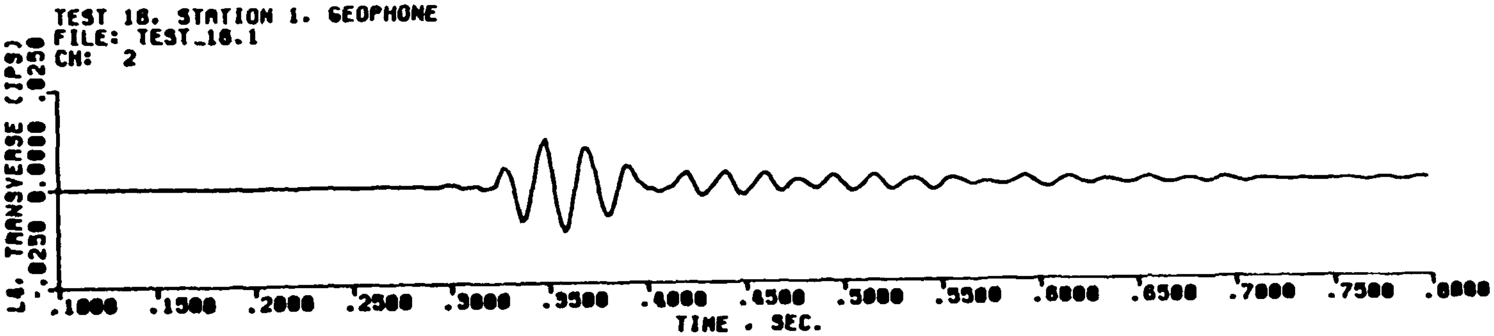
.0350
.2000
.2500
.3000
.3500
.4000
.4500
.5000
.5500
.6000
.6500
.7000
.7500
.8000
.8500
.9000
TIME , SEC.


TEST 16. STATION 1. GEOPHONE
FILE: TEST_16.1
CH: 2
L4. TRANSVERSE (IPS)
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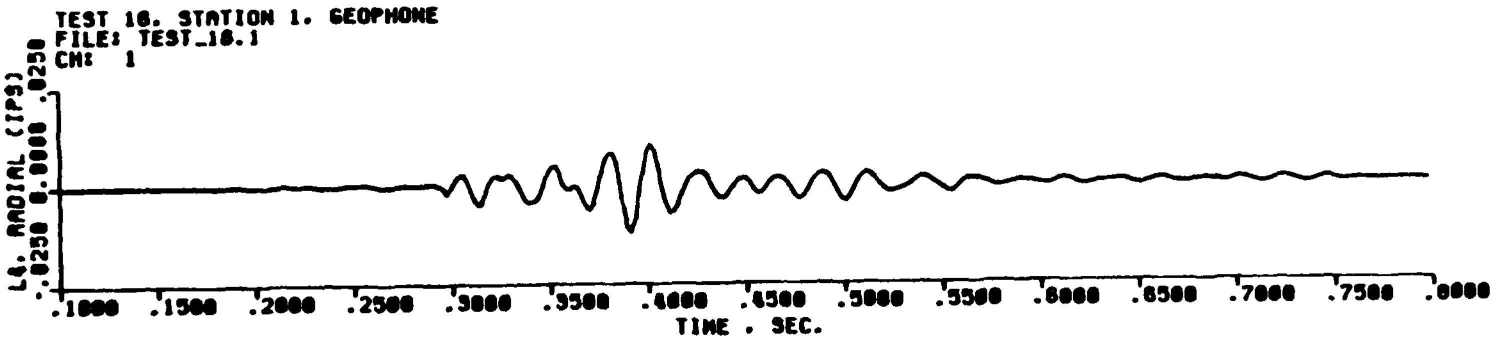
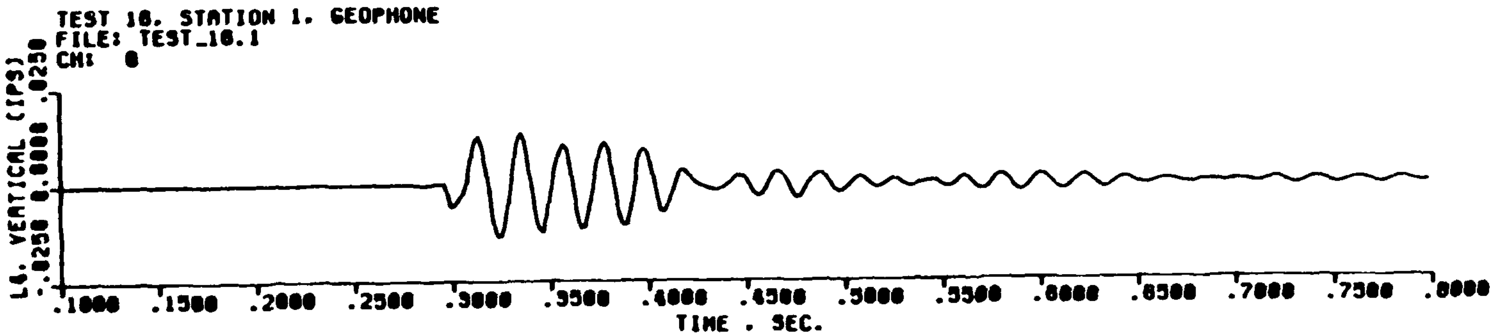
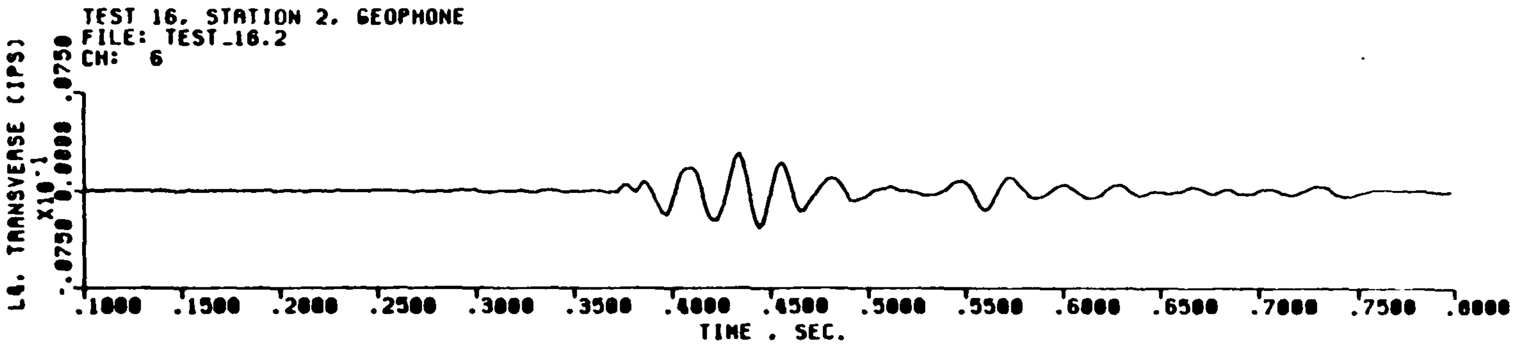
.0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.


TEST 16. STATION 1. GEOPHONE
FILE: TEST_16.1
CH: 1
L4. RADIAL (IPS)
.0250
0.0000
.0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.


TEST 16. STATION 1. GEOPHONE
FILE: TEST_16.1
CH: 0
L4. VERTICAL (IPS)
.0250
0.0000
.0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME . SEC.


TEST 16, STATION 2, GEOPHONE
FILE: TEST_16.2
CH: 6
L4, TRANSVERSE (IPS)
X10^-1
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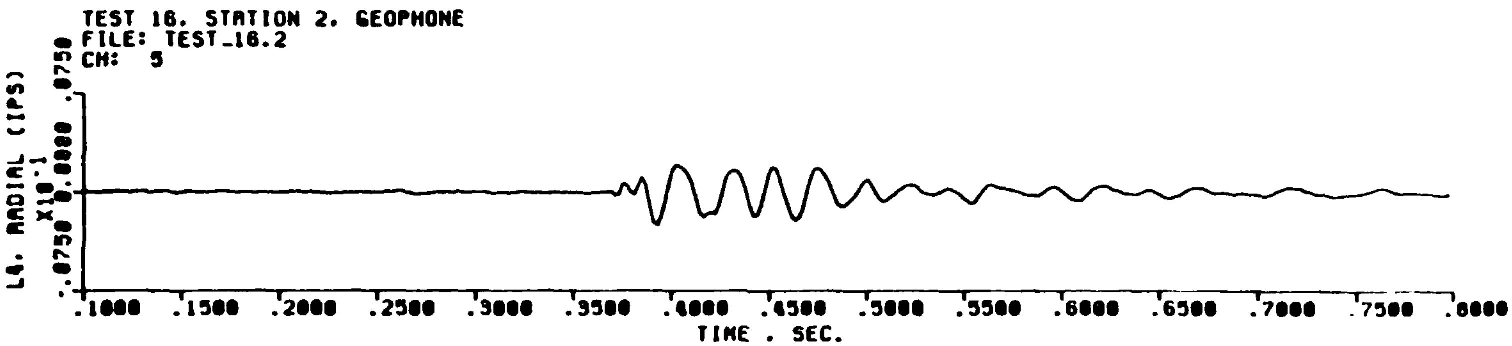
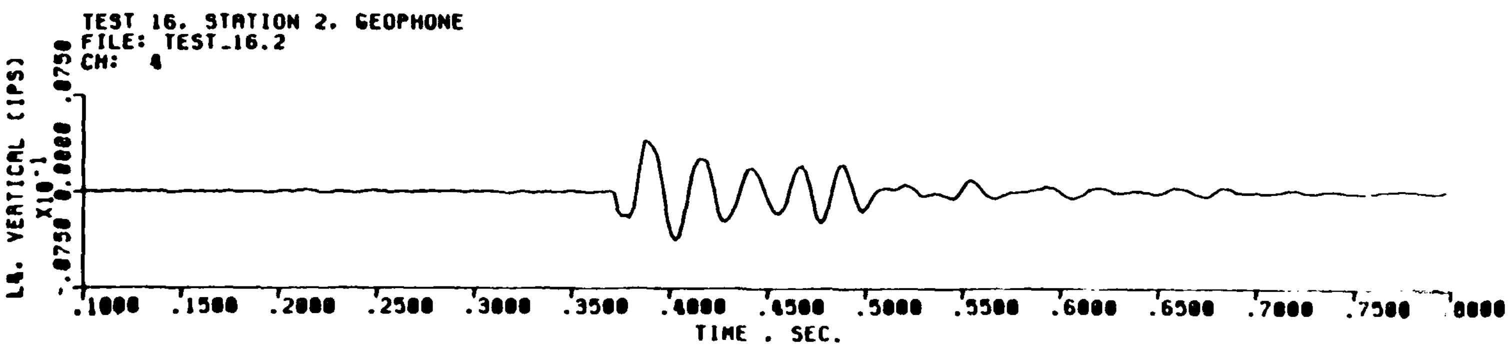
-.0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 16, STATION 2, GEOPHONE
FILE: TEST_16.2
CH: 5
L4, RADIAL (IPS)
X10^-1
.0750
0.0000
-.0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 16, STATION 2, GEOPHONE
FILE: TEST_16.2
CH: 4
L4, VERTICAL (IPS)
X10^-1
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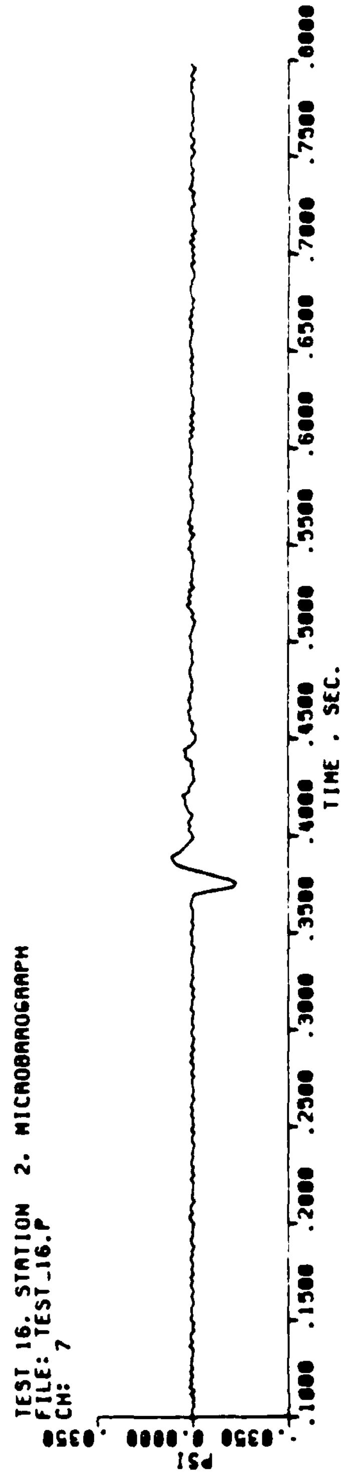
-.0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 16. STATION 2. MICROBAROGRAPH
FILE: TEST_16.P
CH: 7
PSI
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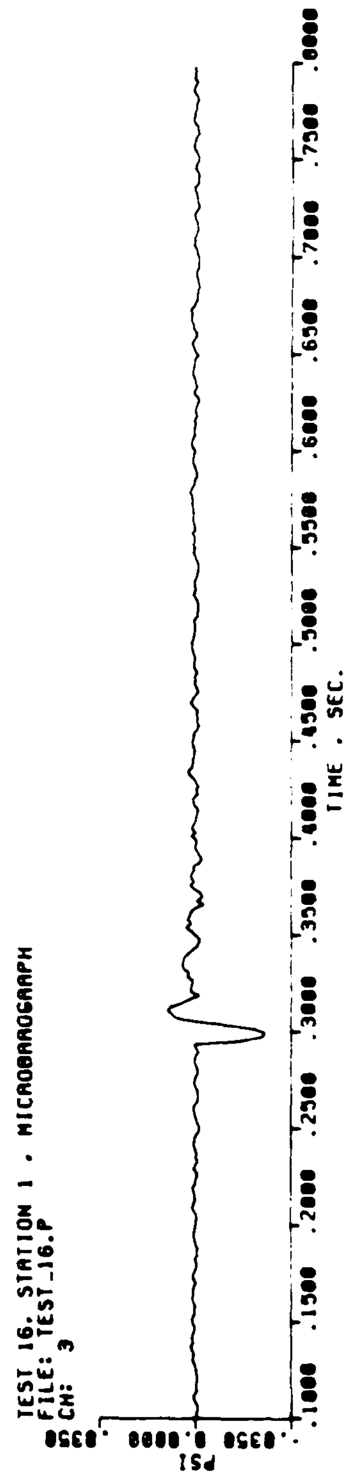
-.0350
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 16. STATION 1 . MICROBAROGRAPH
FILE: TEST_16.P
CH: 3
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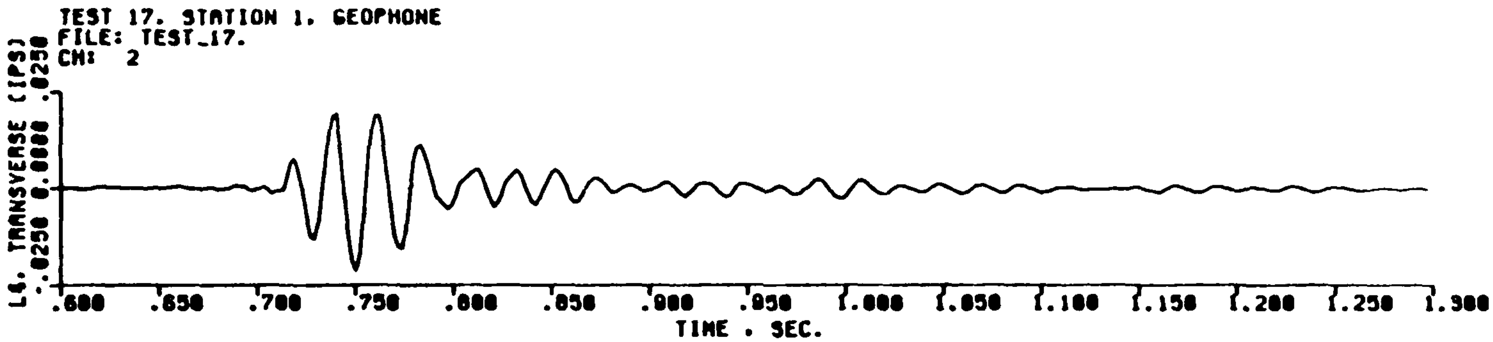
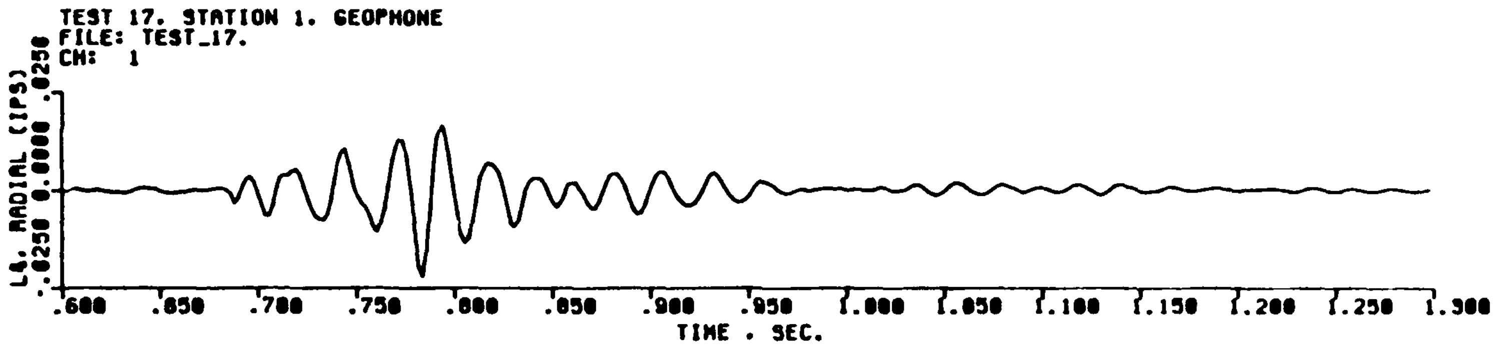
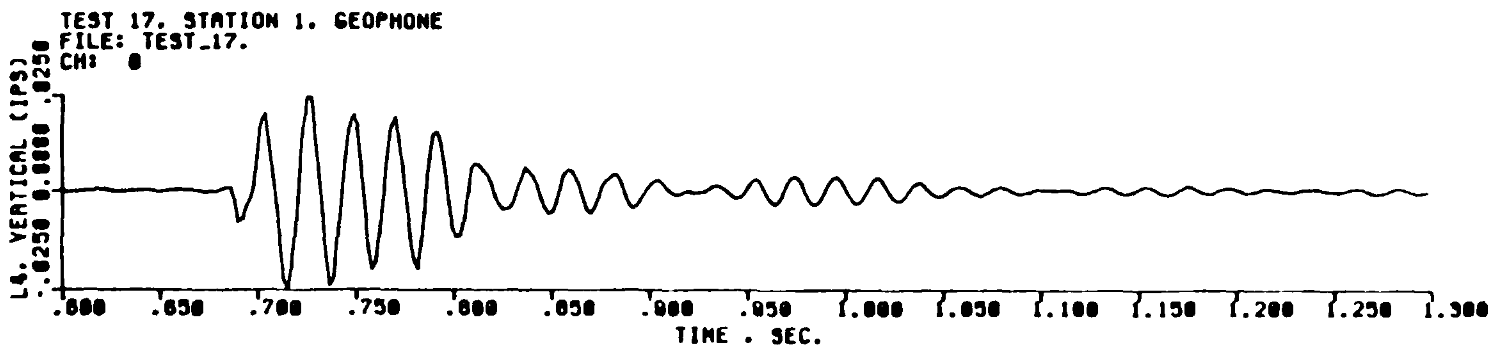
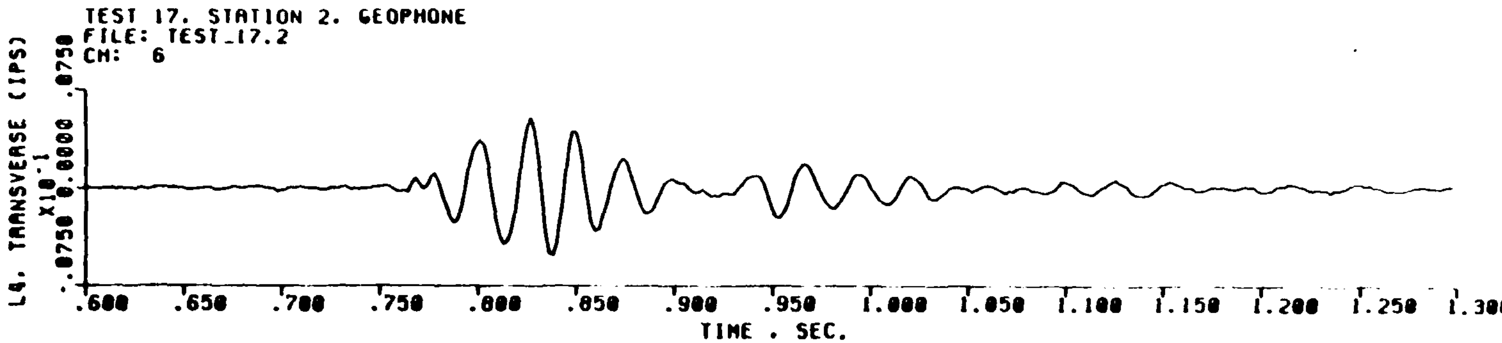
-.0350
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 17. STATION 1. GEOPHONE
FILE: TEST_17.
CH: 2
L4, TRANSVERSE (IPS)
.0250
0.0000
-.0250
.600
.650
.700
.750
.800
.850
.900
.950
1.000
1.050
1.100
1.150
1.200
1.250
1.300
TIME . SEC.


TEST 17. STATION 1. GEOPHONE
FILE: TEST_17.
CH: 1
L4, RADIAL (IPS)
.0250
0.0000
-.0250
.600
.650
.700
.750
.800
.850
.900
.950
1.000
1.050
1.100
1.150
1.200
1.250
1.300
TIME . SEC.


TEST 17. STATION 1. GEOPHONE
FILE: TEST_17.
CH: 0
L4, VERTICAL (IPS)
.0250
0.0000
-.0250
.600
.650
.700
.750
.800
.850
.900
.950
1.000
1.050
1.100
1.150
1.200
1.250
1.300
TIME . SEC.


TEST 17. STATION 2. GEOPHONE
FILE: TEST_17.2
CH: 6
L4. TRANSVERSE (IPS)
X10^-1
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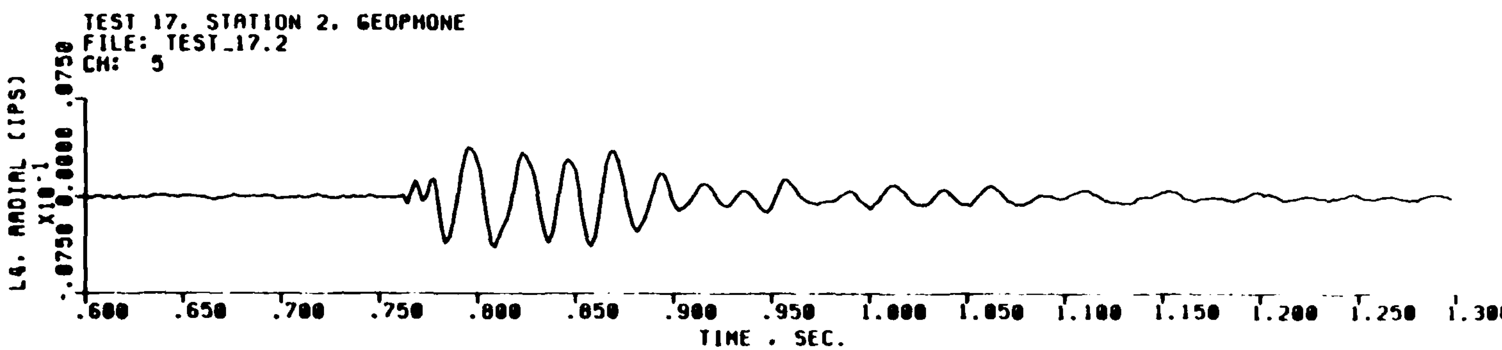
0.0000
-.0750
.600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300
TIME . SEC.


TEST 17. STATION 2. GEOPHONE
FILE: TEST_17.2
CH: 5
L4. RADIAL (IPS)
X10^-1
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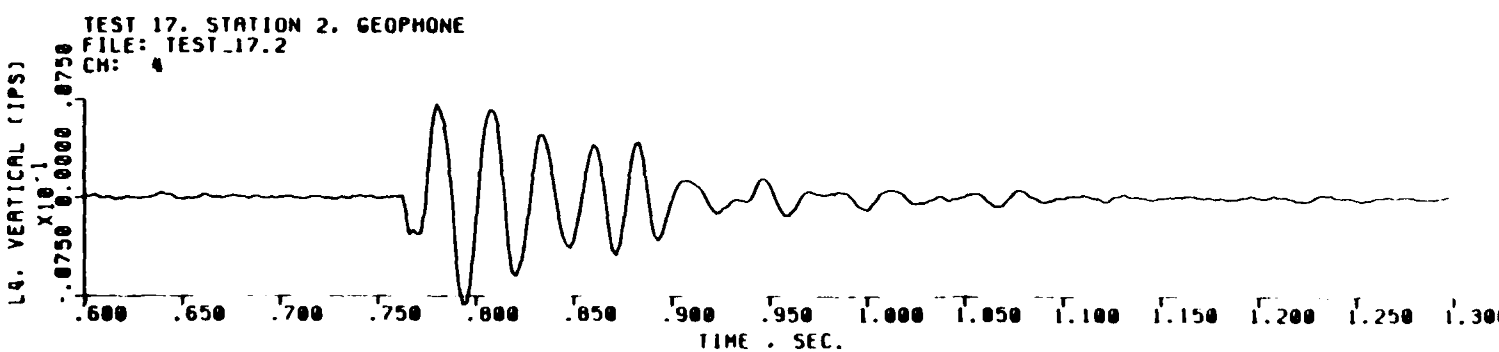
-.0750
.600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300
TIME . SEC.


TEST 17. STATION 2. GEOPHONE
FILE: TEST_17.2
CH: 4
L4. VERTICAL (IPS)
X10^-1
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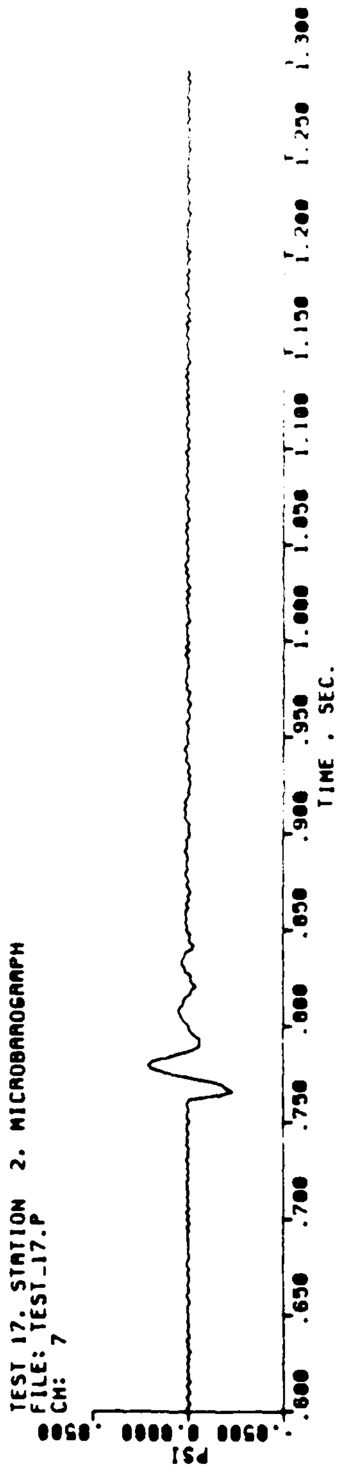
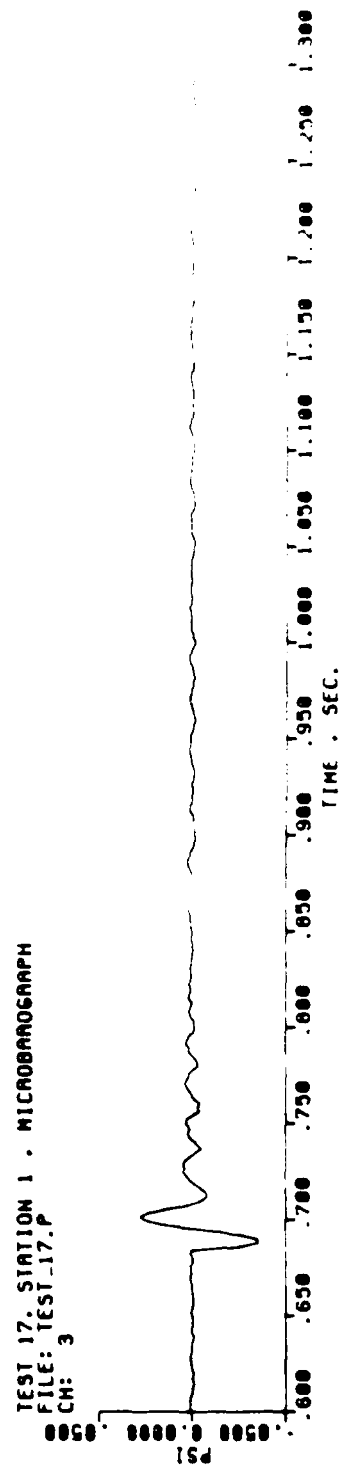
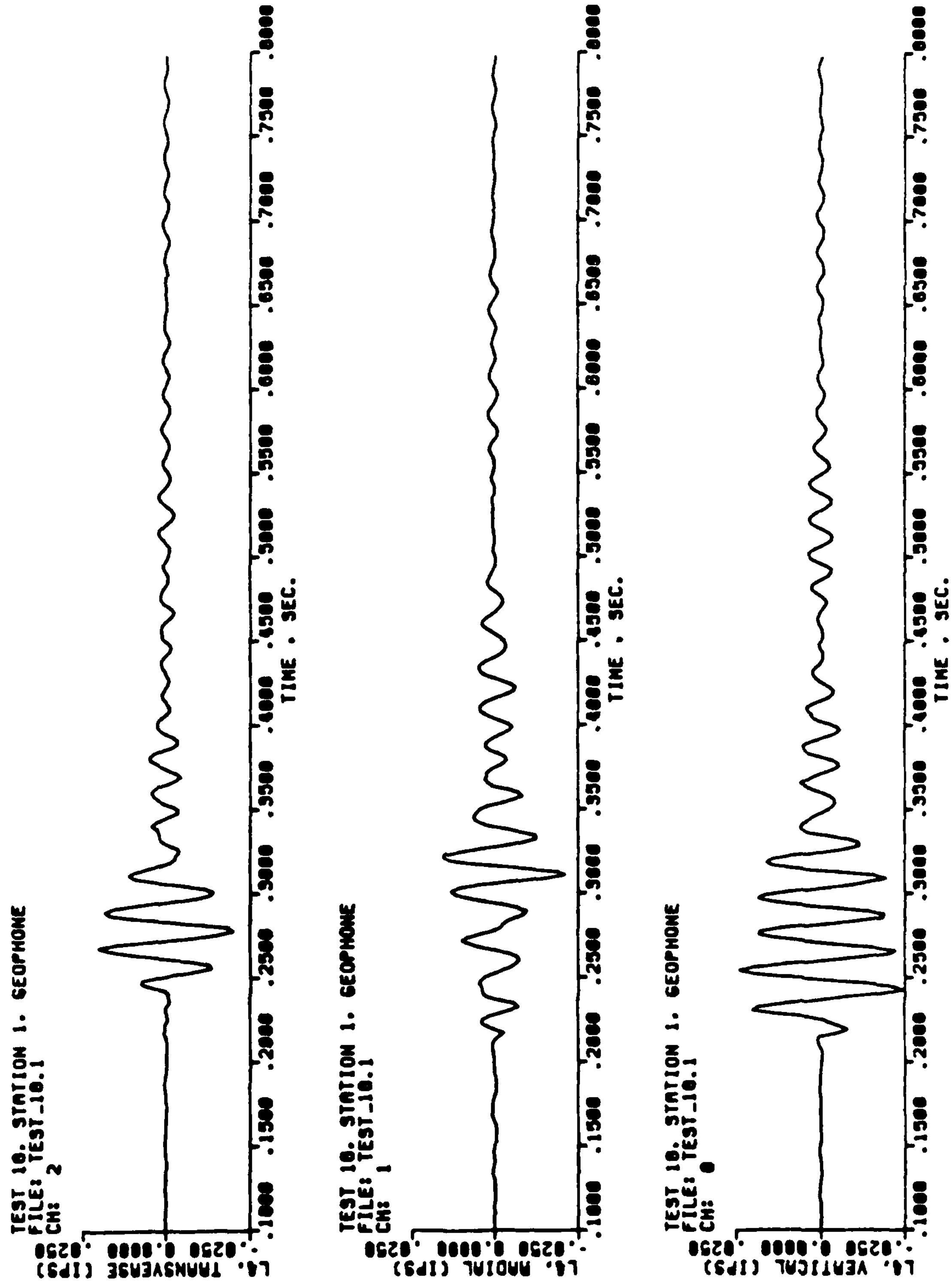
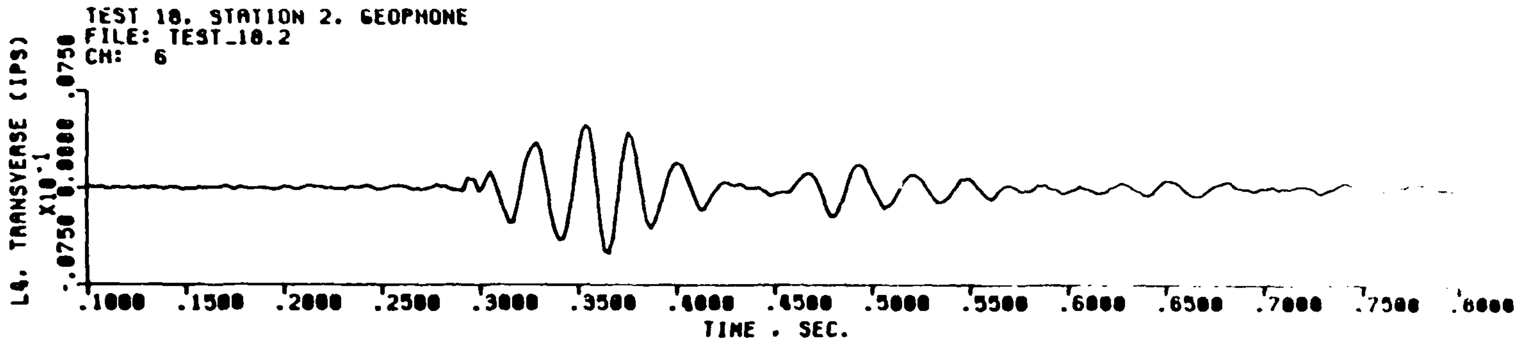
-.0750
.600 .650 .700 .750 .800 .850 .900 .950 1.000 1.050 1.100 1.150 1.200 1.250 1.300
TIME . SEC.


TEST 17. STATION 2. MICROBAROGRAPH
FILE: TEST_17.P
CH: 7
PSI
TIME , SEC.


TEST 17. STATION 1 . MICROBAROGRAPH
FILE: TEST_17.P
CH: 3
PSI
TIME , SEC.


TEST 10. STATION 1. GEOPHONE
FILE: TEST_10.1
CH: 2
L4, TRANSVERSE (IPS)
.0250 0.0000 -.0250
TEST 10. STATION 1. GEOPHONE
FILE: TEST_10.1
CH: 1
L4, RADIAL (IPS)
.0250 0.0000 -.0250
TEST 10. STATION 1. GEOPHONE
FILE: TEST_10.1
CH: 0
L4, VERTICAL (IPS)
.0250 0.0000 -.0250
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 10. STATION 2. GEOPHONE
FILE: TEST_10.2
CH: 6
L4. TRANSVERSE (IPS)
X10^-1
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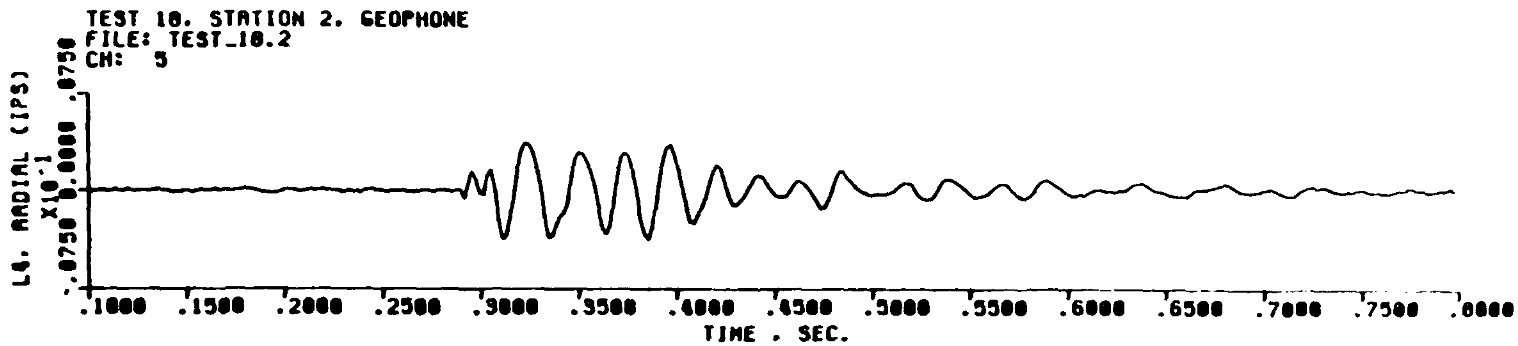
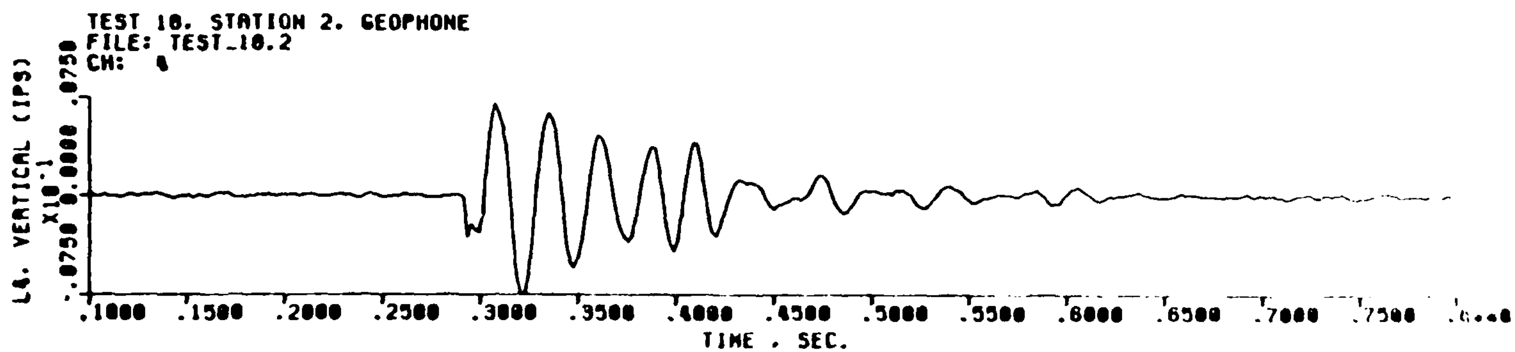
0.0000
-.0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 10. STATION 2. GEOPHONE
FILE: TEST_10.2
CH: 5
L4. RADIAL (IPS)
X10^-1
.0750
0.0000
-.0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 10. STATION 2. GEOPHONE
FILE: TEST_10.2
CH: 4
L4. VERTICAL (IPS)
X10^-1
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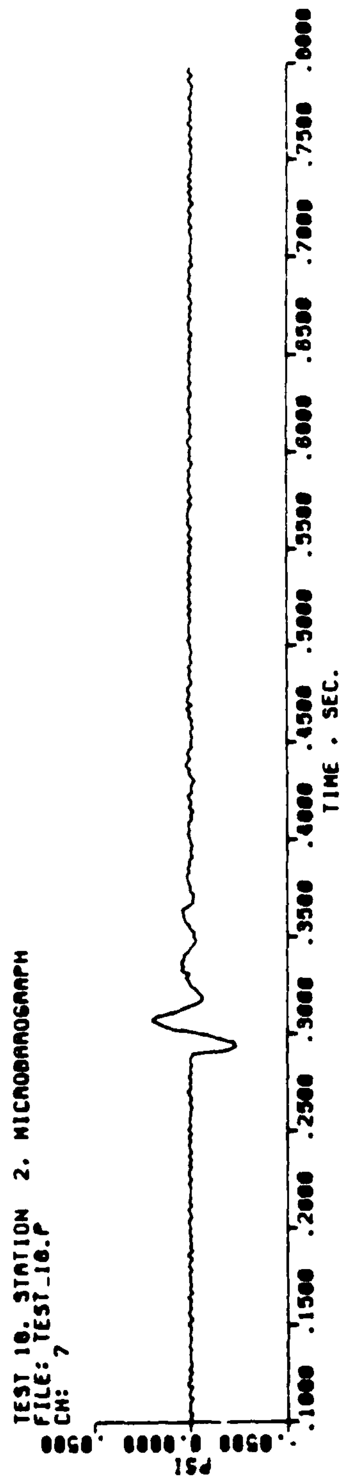
-.0750
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500
TIME , SEC.


TEST 10. STATION 2. MICROBAROGRAPH
FILE: TEST_10.P
CH: 7
PSI
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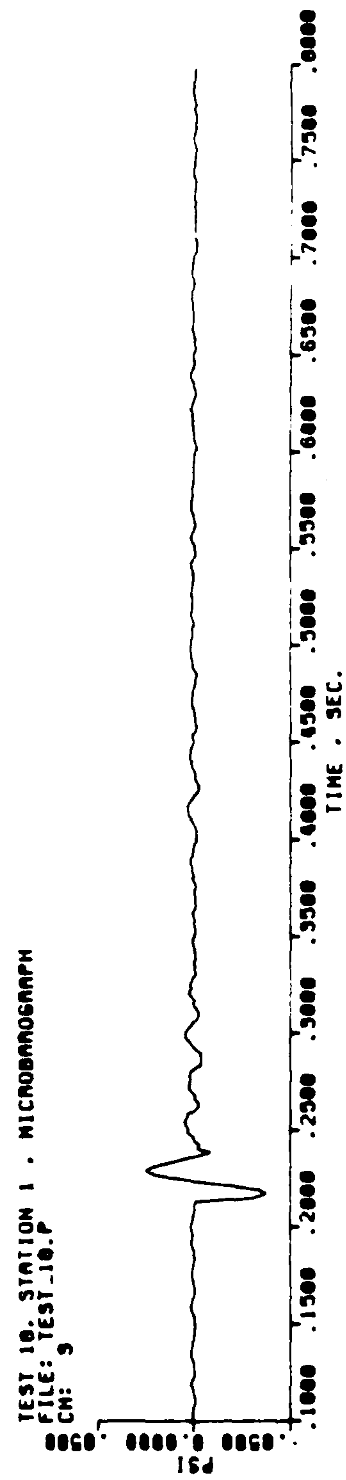
-.0500
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.


TEST 10. STATION 1 . MICROBAROGRAPH
FILE: TEST_10.P
CH: 5
PSI
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0.0000
-.0500
.1000 .1500 .2000 .2500 .3000 .3500 .4000 .4500 .5000 .5500 .6000 .6500 .7000 .7500 .8000
TIME , SEC.